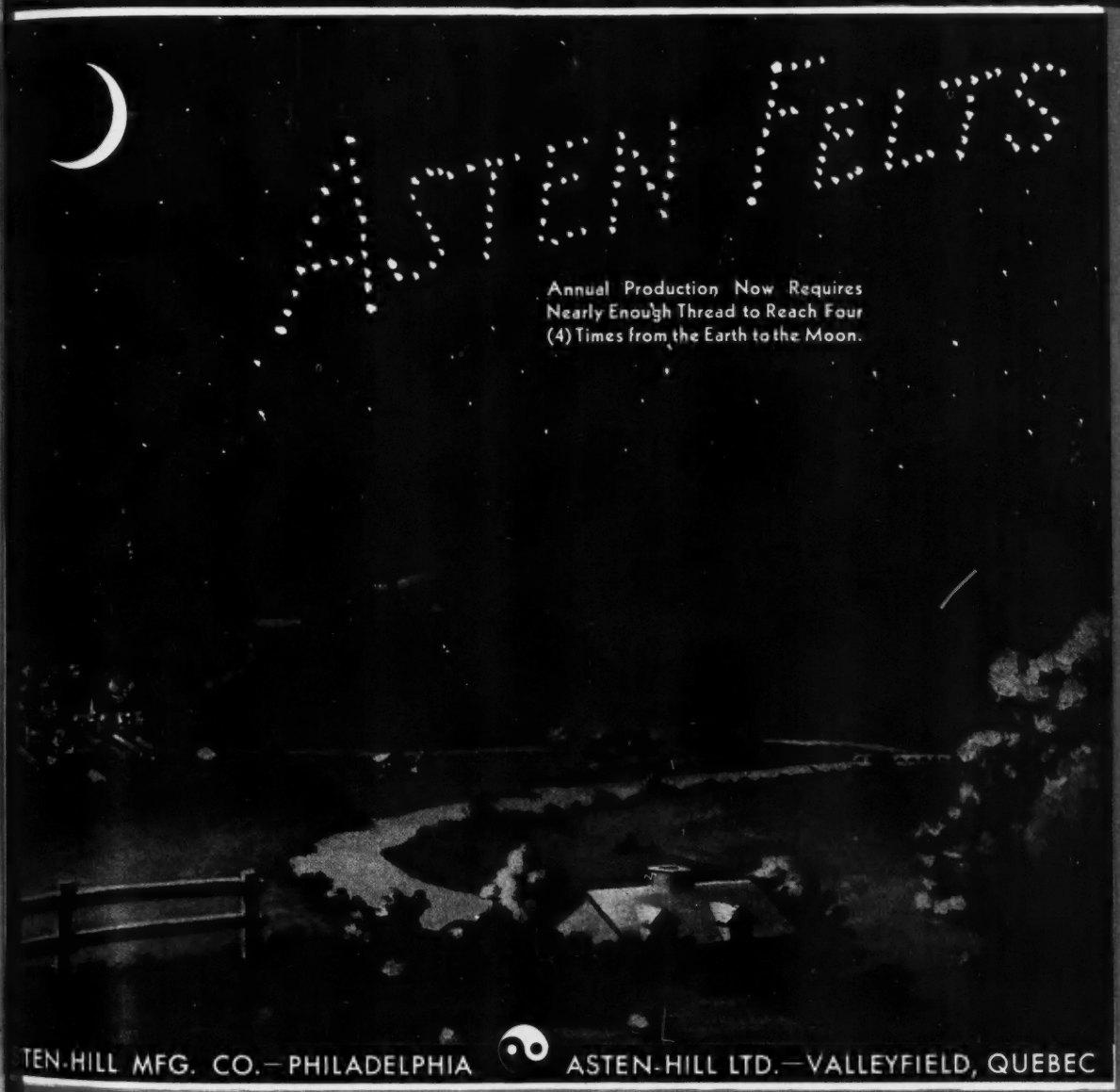
# PAPER TRADE JOURNAL

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD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Vol. CVI
No. 9

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# PAPER TRADE JOURNAL

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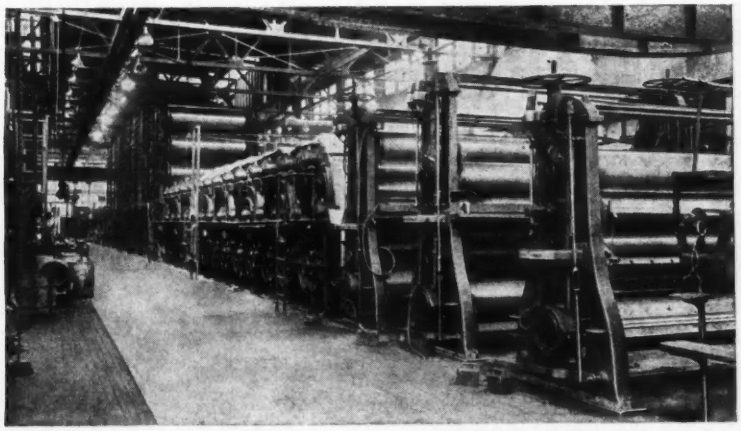

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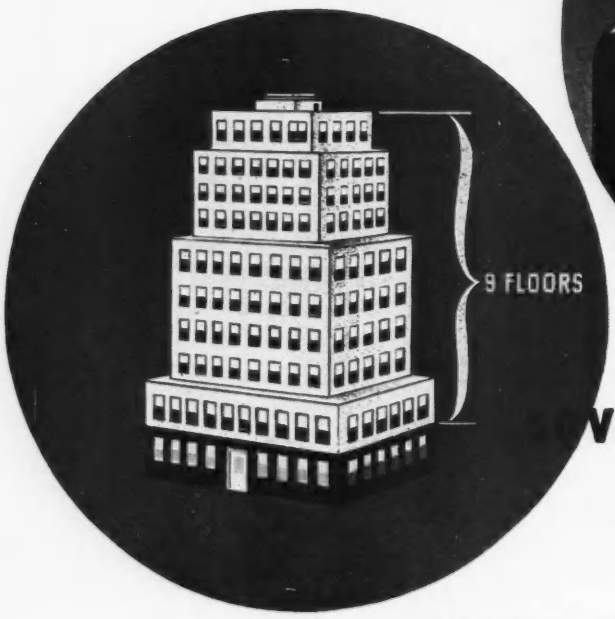


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SIXTY-SIXTH YEAR

PAPER

PAPER

Established Feb. 17, 1899
Consolidated Nov. 16, 1899
with Paper Trade Journal.

Vol. CVI, No. 9

Thursday, March 3, 1938

Established Sept. 21, 1919
Consolidated Feb. 19, 1925
with Paper Trade Journal.


# National Labor Board Hears Union Charges

## Seven Day Hearing at Nekoosa, Wis. Sifts Charges of A. F. of L. Against Nekoosa-Edwards Co. — H. S. Furminger Patents New Type of Paper Machine — Would Unionize Pulp and Paper Mills — Late Mill News.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., Feb. 28, 1938.—It took seven days of hearings by Trial Examiner Henry J. Kent of Washington, D. C., representing the National Labor Relations Board to air charges brought by American Federation of Labor, complainants of unfair labor practices by the Nekoosa-Edwards Paper Company, Nekoosa, Wis. The testimony filled more than 1,300 typewritten pages, and approximately 70 witnesses were heard. In addition there were 120 exhibits.

Examiner Kent said he would make his intermediate report within about three weeks, and then would give both sides ten days in which to file exceptions. If exceptions are made, the case will be argued before the labor board at Washington. Otherwise, the report will automatically become the official finding of the board, subject to appeal to the courts.

Three principal questions are at issue: The status of Romeo Plenge, financial secretary of the AFL Papermakers' local, who claims discrimination on personal grounds because of a transfer from one mill to another; whether AFL unions are entitled to recognition as exclusive bargaining agency for employees of both of the company's mills, and whether the Nekoosa-Port Edwards Labor union, an independent labor organization recently formed, is a company union.

Plenge was a backtender at the Nekoosa mill prior to June 17, 1937. He was transferred to the Port Edwards, Wis. mill September 10, 1937. The company testified the reason was his inability to keep harmonious relations with his fellow employees, but union witnesses claimed the reason was union activity. Whether he shall be restored to his former job is one of the questions to be decided.

### Labor Relations of Company Reviewed

The whole history of the company's labor relations was reviewed in testimony, from the time a mill council was organized about four years ago and including activities last summer and fall in determining which group the company would recognize as its bargaining agent.

John E. Alexander, president, and F. R. Rosebush, personnel director, were cross-examined by attorneys along with other executives, union officials and employees, to affirm or deny evidence of unfair practices. Mr. Alexander denied that the independent union organized among the employees was fostered or encouraged by the company itself. Mr. Rosebush testified that the company had no "set" labor policy, declaring it had only one intention, and that was to abide by the labor laws. AFL unions, through testimony by Albert J. Hayes, Organizer for the International Association of Machinists, claim a total of 669 members out of approximately 1,000 employed at the company's two mills. It appeared from testimony that the independent union had a majority in the Nekoosa, Wis. mill, and that the AFL predominated in the Port Edwards mill. An election held last summer satisfied the company that the independent union was entitled to the right to be the bargaining agent, and declined to negotiate with AFL representatives until they were able to establish their majority status. Charges were filed last fall after the AFL found it could not displace the independent union.

### Would Unionize All Pulp and Paper Mills

Unionization of all pulp and paper mills was predicted by John P. Burke of Fort Edward, N. Y., president of the International Brotherhood of Pulp, Sulphite and Paper Mill Workers, in a recent address at Milwaukee, Wis. The meeting was sponsored by the Milwaukee District Council of Paper Workers, composed of seven AFL unions, and was attended by 150 persons. He outlined the progress already made, and said the organization work would continue until all mills are represented. S. A. Stephens of Thorold, Ont., vice-president of the union, also spoke.

### Furminger Patents New Machine

H. S. Furminger of Appleton, Wis., who has been associated with the paper industry for more than 50 years, and retired several years ago as superintendent of the Fox River Paper Company, Appleton, Wis., has been granted a United States patent for his invention of a new type of paper machine.

The machine includes two opposed Fourdrinier wires having their upper ends travelling towards

*(Continued on page 17)*

# Asks Investigation of Lake Sulphite Pulp

## Head of Don Valley Mills Demands Ontario Securities Commission Investigate Cause of Lake Sulphite Pulp Co. Receivership — Suggests Cost of Production Should Be Thoroughly Considered — Other Late News.

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., February 28, 1938.—N. E. Wainwright, head of the Don Valley Paper Mills, Limited, Toronto, put a problem before the Ontario Securities Commission in a demand this week that the commission investigate the putting into receivership of the Lake Sulphite Pulp Company. Mr. Wainwright suggested that before any additional financing be permitted the company there should be a careful examination in the light of the situation today, to find out who are the prospective customers of the company for rayon pulp and for standard sulphite; what percentage of the output would be taken by these potential buyers and what prices they would pay. He suggests also that the cost of production should be considered to see just how far the difference between the cost and selling price will warrant a capitalization of at least ten million dollars.

In his letter to the Securities Commission Mr. Wainwright says: "Officials of the Lake Sulphite Pulp Company will endeavor to blame market conditions for the difficulties they have run into, but I submit that this is not an adequate reason, by any means, because:

1.—"The enterprise in the beginning was a promotion enterprise to take advantage of the temporary increase in the demand for pulp.

2.—"Any reputable company, financial or otherwise, would naturally satisfy itself whether or not this increase in consumption was temporary, or to what extent the market would absorb a substantial increase in production in the demand for pulp.

3.—"From the years 1930 to 1935, pulp was selling below cost or barely at the cost of production. In 1936 the demand for pulp began to improve and the price legitimately increased to a reasonable level. The demand increased so that the mills were running nearly full, but not quite.

4.—"In 1937, in the early part of the year, due to speculative buying on the part of the mills, pulp dealers, etc., the demand became greater than the supply, but it was obvious to those in the trade that it was a purely speculative position. The price was increased without regard to the danger of quickly killing the demand, which, of course, as has been shown in three months, reverted back to normal.

5.—"Quickly the Lake Sulphite changed its plans to make rayon pulp, and it should be remembered that there are other legitimate firms making this very technically controlled grade of cellulose in Canada. The British Columbia Pulp Co. had already done the same thing to take care of the demand from Japan, and at this date it is understood that this company is endeavoring to dispose of its pulp in South America and other places to make up for the reduction of the demand in the Japanese market, due to world conditions. Temporarily there is a glut of pulp all over the U. S. A., shipped from Scandinavia. There are probably 90,000 tons of pulp stored at Baltimore, Boston and New York.

Mr. Wainwright also asks: "To whom was the recent issue of certificates sold and are they the members of the original syndicate that promoted the company and, if that is the case, does that leave them in control by virtue of the purchase of these notes."

### May Resume Operations Soon

Meanwhile resumption of bush work on the Lake Sulphite timber limits within a week or two, and construction, will go on again within the same space of time according to well-informed circles in Fort William. A former official of the company said: "There is a lot of foolish talk around the head of the lake about the company and the position it now finds itself in. Receiverships are nothing new for pulp and paper companies in Canada. There is only one operating in Thunder Bay district which has not been in receivership and that is the Ontario Paper Company, which has limits east of Schreiber. Every other company either is or has been in receivership and they seem to pay better in receivership than otherwise." Representatives of George S. Currie, the receiver, are at Red Rock now making a survey of the situation. One official stated that between 130,000 and 140,000 cords of pulpwood had been cut to date on the limits tributary to the Nipigon and Jachfish rivers.

### Farewell Dinner to Pulp Manager

Bidding farewell to E. M. Paukert, manager of the Fort William plant of the Abitibi Power and Paper Company, who has been appointed to the managership of the Iroquois mill, a number of his friends and business associates held a dinner in his honor at the Royal Edward Hotel. An enjoyable program was presented, with C. Michels in the chair. On behalf of those present Ben Avery presented Mr. Paukert with a beautiful cocktail set. Members of the staff of the Mission plant of the Abitibi company also held a farewell dinner party in honor of Mr. Paukert and a suitable presentation made. He is succeeded in the Fort William mill by W. J. Olsson, formerly of Sault Ste., Marie, Ont.

### A. G. Pounsford Honored at Port Arthur

Twenty years ago on February 13, production was commenced at the Port Arthur plant of Provincial Paper Limited, with the blowing of the first making of sulphite. In the interval there have been 6,171 working days and of these the plant has been in operation, making newsprint and fine grade paper for 5,921 days, or 96 per cent. On that date twenty years ago there were 160 men on the payroll. Forty-six of that number are still employees of the company. The list includes A. G. Pounsford, general manager. The event was celebrated at an informal

dinner in Port Arthur which was attended by business friends and associates of Mr. Pounsford who received many felicitations on his record. Many of the old employees and officials were also on hand to do honor to the general manager and the evening proved a most enjoyable one. Tribute was paid by Mr. Pounsford to the faithfulness of the men under his charge.

## Pulp Men Approve Cut Rules

Definite cutting rules have been approved by all paper pulp companies in Group One of the American Pulpwood Association, State Forester of North Carolina, J. S. Holmes, has announced. North Carolina, Maryland, Virginia and West Virginia are in this group.

"While these cutting rules are not as strict as the ones suggested by the American Forestry Association, they are undoubtedly a step in the better forest conservation," Mr. Holmes said. "If all of the pulp companies in the states comprising this group will make a determined effort to get the farmers and landowners to adhere to the rules they have adopted, there is no doubt that this will help geratly to maintain a steady supply of pulpwood for future use."

The rules are:

(a) "We recognize that partial cutting designed to maintain and improve the forest growing stock is a highly desirable practice and we will use every practicable means of securing the adoption of such practice.

(b) "As a first step in carrying out this policy, no trees under eight inches in diameter at the stump (12 inches above the ground) will be cut except for stand improvement purposes. (Stand improvement consists of the removal of defective or damaged trees and necessary thinnings for improved growth.)

(c) "If partial cutting is not practiced, not less than four seed trees per acre, well distributed over the area, will be left unless the area is already stocked with young growth. A seed tree is defined as a thrifty tree with a well-formed crown and not less than eight inches in diameter breast high, or 4½ feet above ground."

## G. L. Sprague Offers Consulting Service

HOLYOKE, February 28, 1938.—George L. Sprague of 41 Princeton street this city, has resigned from the American Writing Paper Corporation, and plans to offer a consulting service for manufacturers in establishing production standards for measuring day and hourly work. Mr. Sprague had been department manager in charge of that type of work. He came to Holyoke in 1928 after performing similar work for the American Locomotive Company, Allis Chalmers Co., and General Motors Corporation. He will continue his home here and will establish an office in this city.

## Government Paper Awards

WASHINGTON, D. C., March 2, 1938—The Government Printing Office has awarded the contract to Barton, Duer & Koch Paper Company for furnishing 750 sheets of 100 per cent rag, buff index paper, 20½ x 24¾ at $19.00 per M sheets.

The R. P. Andrews Paper Company will furnish 6,000 sheets of Whitings woven linen azure note paper at $153.60.

## Paper Men on Greater New York Fund

Well known paper industry men have joined with other business, employee and welfare leaders of New York City in sponsoring a program for the financing and coordination of more than 800 private health and welfare agencies in New York City, according to an announcement by James G. Blaine, president of the Marine Midland Trust Company and president of the newly formed Greater New York Fund, Inc.

More than 3400 persons gathered at the Center Theatre, in New York, Thursday evening, February 24 to hear details of the plan outlined by Mr. Blaine, John D. Rockefeller, Jr., former Governor Alfred E. Smith, and former New York Appellate Division Justice Joseph M. Proskauer. Mayor Fiorello H. LaGuardia presided.

The speakers disclosed that the Greater New York Fund, Inc., which has been organized to carry out the program, will launch a city-wide campaign for contributions of $10,000,000 from business firms and employees beginning May 2. Individual welfare and health agencies will continue to seek contributions from their own individual contributors, a method which has proved successful in Chicago and other cities.

Winthrop Rockefeller will serve as executive vice-chairman of the campaign; John S. Burke, president of B. Altman & Co., and Paul Felix Warburg, as vice-chairmen. Junius Morgan will be treasurer.

Paper industry representatives appearing on the Sponsoring Committee list are: Alex Calder, president, Union Bag & Paper Corporation; Hugh J. Chisholm, president, Oxford Paper Company; C. W. Cromwell, treasurer, Lathrop Paper Company, Inc.; E. Victor Donaldson, president, Robert Gair Company, Inc.; Roy K. Ferguson, president, St. Regis Paper Company; Anson C. Goodyear, chairman of the board, Gaylord Container Corporation; and Henry L. Peffer, chairman of executive committee, Sylvania Industrial Corporation.

## France Exports More Cigarette Paper

WASHINGTON, D. C., March 2, 1938—Exports of cigarette paper from Bordeaux to the United States during 1937 amounting to 2,007,806 pounds valued at $501,594 and increased in both volume and value when compared with the 1,559,308 pounds valued at $407,871 exported during 1936, according to a report from the American Consulate General at Paris made public by the Department of Commerce. The 1936 figure represented the largest quantity of cigarette paper exported from Bordeaux since 1934, the report stated.

Exports of flat cigarette paper, in the form of cigarette books, from Bordeaux to the United States in 1937 amounted to 601,802 pounds valued at $138,457 compared with 473,049 pounds valued at $122,551 in 1936, statistics show.

Exports of cigarette paper in bobbins, which paper is placed in books upon arrival in the United States, amounted to 1,405,004 pounds valued at $363,137 during 1937, compared with 1,086,259 pounds valued at $285,320 during the pervious years the report stated.

It was reported in Bordeaux that the increased shipments of cigarette paper to the United States was due in part to the desire of American manufacturers to build up stocks as well as to increased production of cigarettes, according to the report.

# Surplus Stocks of Newsprint a Problem

## Liquidation of Inventories of Newsprint Seems Almost as Formidable as Last December — Large Increase in January With Canadian Exports Showing Sharp Decline — Donnacona Paper Publishes Annual Report.

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., March 1, 1938.—Two months of the present year have now passed, and the problem of liquidating the surplus stocks of newsprint seems almost as formidable as it did in December last, despite the fact that production has continued to be curtailed. Meanwhile a difference of opinion has developed as to the extent of the surplus stocks. One set of industrial figures is quoted as showing that at the end of 1937 North American stocks totalled 877,384 tons, an increase of 352,197 tons as compared with December, 1936. Another set indicates that there was an increase of 443,000 tons. The same discrepancy in figures is shown in regard to returns for January. An analysis of production, imports, indicating consumption, and change in aggregate stocks would seem to indicate that there was an actual decline in North American stocks in January of 20,000 tons, whereas the figures reported by the industry and the American Newspaper Publishers Association show an aggregate increase of 8,000 tons in the available supply. In any case, the general view is that no appreciable progress has been made in reducing the surplus stocks, and the opinion is growing that this will not be done until there is a revival in general business and a consequent increase in newsprint consumption.

### Canadian Exports of Newsprint Lower

As far as Canadian exports are concerned, these were sharply lower in January than in the corresponding month of 1937, the total, at 3,390,182 cwt. Valued at $6,816,828, showing a drop of 1,800,681 cwt. and a decrease in value of $2,437,309. There was a sharp drop also in the exports of wood pulp, the total for January being 753,124 cwt., valued at $2,149,823, as compared with 1,539,461 cwt., valued at $3,072,656 in January 1937.

### Donnacona Paper Company's Annual Report

MONTREAL, Que., March 1, 1938.—The Donnacona Paper Company's annual report for 1937, just forwarded to shareholders, is the best since 1930. There was a further substantial increase in operating profits and a further increase in net working capital.

Operating profits for the period at $600,275 compares with $285,003 in 1936 and after deducting first mortgage interest of $257,873, note interest $33,323, depreciation and depletion $259,223 and income tax of $9,000 there was a net profit of $40,855, equal to 11 cents a share on the combined A and B shares. This compares with net in the preceding year, when the entire balance of $103,943 that remained after bond interest was transferred to depreciation and depletion reserve.

In presenting the report to shareholders, President Kernan says in part: "The newsprint production, although considerably increased over 1936, did not come up to expectations owing to the fact that our program for increasing newsprint capacity was held up several months through unavoidable delays in delivery of new machinery. The increase in the production of insulating board was satisfactory. The improvements in the sulphite mill carried out on schedule time, resulted in the production anticipated."

Referring to the current newsprint situation and to the outlook he added: "Although our contract position for the sale of newsprint for the current year is most satisfactory, the outlook is somewhat obscure owing to the fact that publishers at present have large newsprint stocks on hand; however, it is now evident that their surplus stocks are being consumed and that some time during the spring conditions should be considerably improved."

## Indianapolis Sees Improvement

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., February 28, 1938.—With paper stocks throughout this section extremely low and prices being firmly held, the general outlook for the coming month is considerably brighter than it has been for some time. Manufacturers, jobbers and paper users all have held their stocks to as low a point as possible until the first of March, which is the annual tax assessment period. Following this, according to present indications, there will be some buying to replace broken and poorly balanced stocks. The general trend, however, is expected to continue toward low stocks, with buying on a hand to mouth basis, but the stocks will be larger than they have been for a month and better balanced.

The newsprint demand continues good with advertising lineage approximately equal to that of last year. The smaller rural papers seem to be particularly well fixed.

The fine paper demand is improving slightly. Some buying was done last week and a good volume of inquiries is being received. Governmental printing contracts are being closed in all sections of the state and the successful bidders are beginning to make purchases. Covers are moving in fair volume with the amount of direct mail advertising showing a tendency to increase. Book papers also are in good demand as compared with a month ago.

Kraft seems to be in a good position, having shown considerable improvement in demand during the last two weeks, following a slump after the first of the year. Tissues seem to be moving nicely. Cellophane and waxed papers also are in fair demand. Prices are being well maintained in these lines.

Faced with virtually empty warehouses, the paper box and container field seems due for a sharp improvement after today.

## Returns from Central America

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., February 28, 1938.—Howard J. Lacy II, vice president of the United States Corrugated Fiber Box Corporation, Indianapolis, and Mrs. Lacy have returned from an extensive trip through Central America.

# Paper House of Dobler & Mudge to Liquidate

## Business Established in Baltimore By Abner Mudge in 1835 Announces Retirement From Paper Trade — Trustees Appointed By Court to Handle Liquidation — McCabe Presents Bowling Trophy — Other Trade News.

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., February 28, 1938.—Announcement has recently been made of the retirement from business of Dobler & Mudge, Baltimore, Md. The decision to liquidate was made by Arthur P. Mudge, sole owner, and Anthony J. Walter, one of the co-managers of the company, and Thomas M. Jenifer have been appointed trustees by the court to handle the liquidation. It has been directed that all claims must be filed by April 1. The present plan is to dispose of the stock at private sale.

Mr. Mudge, who has been associated with the firm since 1905, has been sole owner since the death of his father, E. Tileston Mudge, in 1926. Operation of the business has been in the hands of Mr. Walter and A. P. Bond as co-managers.

The business was established in 1835 by Abner B. Mudge, grandfather of the present owner: George W. Wheelwright and Samuel E. Turner, operating under the name of Turner, Wheelwright & Mudge. Mr. Wheelwright moved to Boston in 1850 and establisned the George W. Wheelwright Paper Company. Later in 1865, the Baltimore firm operated as Wheelwright, Mudge & Company. Those who comprised the firm at that time were Abner B. Mudge, Jeremiah Wheelwright and Bartus C. Dorsey. E. Tileston Mudge and Gustavus A. Dobler were admitted to partnership in 1867, and in 1880 the name was again changed to Dobler & Mudge. In 1903 Mr. Dobler died. Both he and Mr. Mudge were held in high esteem and occupied high places in the trade in Baltimore. Mr. Mudge was instrumental in the organization of the Baltimore Paper Trade Association and served as its first president.

In the great Baltimore fire of 1904, every important paper house in the city with the exception of Dobler & Mudge was burned out. Since 1880 the firm has been located at 113 Hopkins Place. At one time the firm operated mills in Maryland devoted to the manufacture of rag book papers and binders board.

A. P. Bond, formerly one of the co-managers of Dobler & Mudge, and well and favorably known in the trade, has become connected with Mudge Paper Company, 11 East Lombard street, Baltimore. Simultaneously, announcement is made of the formation of a new company known as the A. P. Bond Paper Company. The Mudge Paper Company, just rounding out ten years in the fine paper field, has grown steadily with offices in Baltimore, Washington and York, Pa. Mr. Bond, who has been elected a vice-president of the company, announces that he will install a complete wrapping paper department in the Mudge organization, acting as manager of this department and will serve as selling manager to the Baltimore trade.

The A. P. Bond Co., is to be a segregated unit, operating from the address of the Mudge Paper Company. Mr. Bond announces it will be a mail order business, soliciting industrial concerns and institutions from Maine to Texas. Shipments will be made direct fro mthe mills to customers or from the Mudge Paper Co.'s warehouse in Baltimore, Washington and York. The business of the A. P. Bond Paper Company will be wholly owned by Mr. Bond.

### McCabe Presents Bowling Trophy

Thomas B. McCabe, president of the Scott Paper Company since 1925, and one of the keenest of local bowling enthusiasts, has presented a large trophy to be awarded to the winning team of 15 men scheduled on Saturday to take its place beside the Andy MacMurtrie and Ellis C. Abrams trophies as a goal for local industrial plants to achieve. The conditions are that the cup must be won three times to become permanent possession of any plant. This feature tends to stimulate a continuity of interest and it is hoped will prove an incentive to other local plants to join the tournament in the future.

The plants participating are Scott Paper, Sun Oil, Congoleum, Eddystone Print, Sinclair Oil, Pure Oil. General Steel plant with its top 15 bowlers, Viscose and Westinghouse.

### Philadelphia Paper Trade More Optimistic

The paper trade has experienced another week of slight expectation and slighter business realization. But the fact that it was just another week towards one of the many proverbial turning points, post-inventory season, is considered favorable in advancing the time when confidence will displace existing doubt. There were manifestations of this increasing optimism in meetings held during the last fortnight, of the local paper and allied trade associations which most distinctly sounded notes of complete confidence.

## Unprecedented Demand For Tickets

A late release by the Banquet Committee in charge of arrangements for the Silver Anniversary Banquet of the National Association of Waste Material Dealers, Inc., to be held at the Hotel Astor, New York, on Wednesday evening, March 16, indicates an unprecedented demand for tickets for that affair. Apparently the quiet condition of business is going to be forgotten and everyone who can possibly do so is planning to attend the Association's epoch-making banquet, which will culminate a quarter of a century of activity in the interest of the Waste Material Trade.

Invitations have been sent to all National Associations with which the association has co-operated during the whole or part of its long existence. Everything points to a very enjoyable celebration and members are coming from every section of the country, also from some of the ten or more foreign countries where the association has a substantial membership.

## Cyanamid Shows Paper Chemicals

Products of the pulp and paper industry, in which sizes and other paper chemicals of the American Cyanamid and Chemical Corporation are used, were displayed at 30 Rockefeller Plaza, during the week of the convention of the American Pulp and Paper Association. These displays are being continued in part for several weeks following the convention.

# Financial News of Pulp and Paper Industry

## Bartgis Bros. Make Good Annual Report With Paper Board Production Higher — American Writing Paper Upheld by Court of Appeals — Sorg Paper Elects Officers—Hawley Co. Expects to Pay Interest—Other News.

**New York Stock Exchange**

High, Low and Last for the Week Ending March 2, 1938

| | High | Low | Last |
|---|---|---|---|
| A. P. W. | 3⅛ | 3⅛ | 3⅛ |
| Armstrong Cork Co. | 34¾ | 33⅞ | 34⅛ |
| Celotex Corp. | 22⅛ | 20¾ | 20⅝ |
| Celotex Corp., pf. | 62½ | 60 | 62½ |
| Certain-Teed Products Corp. | 8⅛ | 7½ | 7½ |
| Certain-Teed Products Corp., pf. | 32½ | 29½ | 30½ |
| Champion Paper & Fibre Co. | 28¾ | 28 | 28 |
| Champion Paper & Fibre Co., pf. | 105⅜ | 105⅛ | 105⅜ |
| Congoleum-Nairn Co. | 23 | 22⅝ | 22⅝ |
| Container Corp. of America | 15¾ | 14¾ | 15 |
| Continental-Diamond Fibre Co. | 8 | 7⅞ | 7⅞ |
| Crown-Zellerbach Co. | 11⅜ | 10⅞ | 11 |
| Crown-Zellerbach Co., pf. | 72 | 72 | 72 |
| Flintkote Co. | 18¾ | 17⅛ | 17⅛ |
| Robert Gair | 4½ | 4¼ | 4¼ |
| Robert Gair, pf. | 14¾ | 14 | 14 |
| International Paper & Power | 8⅞ | 7⅞ | 8⅛ |
| International Paper & Power, pf. | 35⅛ | 32¼ | 33½ |
| Johns-Manville Corp. | 81¼ | 75 | 76½ |
| Johns-Manville Corp., pf. | 124½ | 124½ | 124½ |
| Kimberly-Clark Corp. | 21¾ | 21½ | 21½ |
| MacAndrews & Forbes, pf. | 126 | 126 | 126 |
| Masonite Corp. | 34½ | 33¾ | 34½ |
| Mead Corp. | 14 | 12⅞ | 12⅞ |
| Mead Corp., pf. | 62 | 53 | 53 |
| Paraffine Companies, Inc. | 40½ | 39½ | 40⅛ |
| Ruberoid Co. | 21¼ | 19 | 19 |
| Scott Paper Co. | 39½ | 38⅜ | 39½ |
| Sutherland Paper Co. | 24⅞ | 23⅞ | 23⅞ |
| Union Bag & Paper Corp. | 11⅜ | 10⅜ | 10⅜ |
| United Paperboard Co. | 5½ | 5 | 5 |
| U. S. Gypsum Co. | 69 | 67 | 67¾ |

**New York Curb Exchange**

High, Low and Last for the Week Ending March 2, 1938

| | High | Low | Last |
|---|---|---|---|
| American Box Board Co. | 9¼ | 9¼ | 9¼ |
| Brown Co., pf. | 27⅜ | 26 | 26 |
| Great Northern Paper | 28¾ | 28¾ | 28¾ |
| St. Regis Paper Co. | 3½ | 3¼ | 3¼ |
| St. Regis Paper Co., pf. | 59¾ | 58 | 59¾ |
| Taggart Corp. | 5 | 5 | 5 |

### Bartgis Bros. Make Good Report

E. H. Lupton, president, in submitting the annual report for 1937, to the stockholders of Bartgis Brothers Company, says:—

"Net sales totaled $844,937.48 which is approximately 25 per cent increase over 1936, 45 per cent increase over 1935 and 50 per cent increase over 1934.

"The net income after all charges including depreciation but before estimated federal income, excess profits taxes, federal surtax on undistributed profits and Maryland income tax amounted to $139,630.41. After deduction of estimated federal income tax, excess profits tax, surtax on undistributed profits and Maryland income tax amounting to $35,050.00, net income available for dividends amounted to $104,580.41. After paying preferred dividends amounting to $20,421.69 there remained $84,158.72 applicable to the 108,022 common shares outstanding on December 31st, 1937, or earnings of 77 cents per share.

"The company completed public financing in April, 1937, when it had outstanding 20,000 shares of 6 per cent convertible cumulative preferred stock. However, during the year many of the preferred stockholders converted their preferred shares so that on December 31st, 1937, there were only outstanding 7,326 preferred shares. Dividends at the rate of 60 cents per share on the common stock were paid during the year. Total dividends on the preferred and common stock paid during the year amounted to $69,141.09.

"The tons of paperboard produced were 14,320 of which 13,507 tons were converted into folding cartons. We produced 12,088 tons in 1936; 10.924 tons in 1935 and 10,208 tons in 1934.

"During the year your directors voted to change the former methods of the company in carrying fixed assets and eliminated all appraised values and also eliminated all depreciation and amortization against the appraised values, bringing the fixed assets down to an actual cost basis, less proper reserve for depreciation against cost. Depreciation on cost charged off for the year amounted to $28,695.26. Maintenance and repairs amounted to $36,919.60. Improvements and additions to plant, machinery and equipment were made during the year at a cost of $150,891.08.

"The net profit before estimated income and excess profits taxes for 1937 per ton of board produced was approximately $9.75 per ton against approximately $6.40 per ton in 1936.

"The company continues to operate at full capacity. However, our selling prices are now being reduced considerably and operating costs are not coming down proportionately. Therefore, at the present time it would appear that earnings per ton of paperboard produced during 1938 will not be as great as earnings per ton for 1937.

"The company during the year paid off the Federal Reserve Bank loan of $50,000.00 and also paid off in full a loan due a stockholder, an officer of the company, of approximately $256,000.00. The company now has no bank loans.

"The ratio of current assets to liabilities as of December 31st, 1937, was 2.7 to one. Working capital $138,592.90."

### Westinghouse Reports Outstanding Year

Notwithstanding the fact that business receded substantially in the latter months of the year, 1937 was an outstanding year for the Westinghouse Electric and Manufacturing Company, the company reported.

Orders booked for 1937 were $229,540,061 which compares with $182,521,304 in 1936, an increase of 25 per cent. This exceeded orders booked in any year except 1929 when the orders booked were $240,220,555.

Sales billed in 1937 amounted to $206,348,307 as compared with $154,469,031 for 1936. This was an increase of 33 per cent and also was exceeded only in the year 1929.

The Company's net income in 1937 amounted to $20,126,408 compared with the 1936 income of $15,099,291, an increase of 33 per cent. This income was reported after proper provision for Federal income, normal and excess profits taxes and surtax on undistributed profits had been deducted.

At the beginning of 1938 the Company had a large

backlog of orders to carry over into the new year. These unfilled orders of December 31, 1937, amounted to $60,298,087, an increase of 24 per cent over December 31, 1936.

## American Writing Decision Upheld

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, February 28, 1938.—The American Writing Paper Corporation, was upheld by an unanimous decision of the United States Court of Appeals in Boston last week, in a restraining suit by the Holyoke Water Power Company. This case involved the generation of electrical energy on one site and the transfer to and use on another site. The Holyoke Water Power Company, lessor, sought to restrain the paper company from making the transfer and their petition was denied in the lower courts. Last week's decision upheld the earlier findings which in substance state that water power is "used" when it is applied to a water wheel, or similar apparatus, but what use is made of the power derived from that wheel or similar device is not significant. The grants for use of water were not limited to confining the use to which the power might be applied.

The decision is considered by close observers of power relations as highly significant in this section where there are many hundreds of leased water powers, not only in Holyoke but throughout the entire New England states. Many temporarily abandoned water powers may spring to life again for the generation of power for transmission elsewhere, and by companies who are lessees over long periods of time.

## Sorg Paper Co. Elects Officers

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, February 28, 1938.—J. A. Aull was re-elected president of the Sorg Paper Company at the annual meeting of the board of directors, it was announced Tuesday.

Other officials of the paper company that were elected are: M. T. Hartley and A. F. Smith, vice-presidents; D. G. Driscoll, secretary; H. C. Johnson, treasurer; C. E. Aull, assistant secretary; L. H. Ritz, assistant treasurer and A. K. Kerschbaum, assistant treasurer also.

No successor was chosen to the late L. C. Anderson, vice president, whose death occurred several weeks ago.

## Hawley Co. Expects Interest Payment

The Hawley Pulp & Paper company, expects by authority of its board of directors to pay all accumulated interest on its bonds from January 1, 1934, to December 31, 1937, after the annual meeting March 15, it was announced by the firm. The accumulation amounts to 16 per cent.

"We further anticipate," the company announced, "funds to pay such interest will be deposited with the Bank of California, N. A., Portland, Ore., so that the coupons can be cashed on or after April 1."

## F. G. Lockwood Sails for South America

BOSTON, Mass., February 28, 1938.—Frederic G. Lockwood, treasurer of Knight, Allen & Clark, Inc., after attending the convention in New York, sailed on a South American cruise, expecting to return the latter part of March.

### Labor Board Hears Union Charges

*(Continued from page 11)*

each other. A cylinder mold is positioned between the two wires. Paper webs are formed on the wires and transferred to the felt. Mr. Furminger made application May 4, 1936, and received approval to four claims of originality and improvement. He has made no assignment of the patent rights.

### Knickerbocker Goes to North American

Robert Knickerbocker, has resigned as paper technician and inspector at the Riverside Paper Corporation, Appleton, Wis., and has accepted a position with the North American Pulp and Paper Corporation, Cheboygan, Mich. He has been associated with the paper industry in Appleton since 1930, and will take up his new duties March 1.

### Conway-Putnam Nuptials

Joseph M. Conway, president of the Hoberg Paper Mills, Incorporated, Green Bay, Wis., and Jeanette Basche Putnam, also of Green Bay, were married February 16. The ceremony was performed by Judge Henry Graass, a close friend of Mr. Conway.

### Opposes Dam on Wisconsin River

In hearings before a Federal Power Commission examiner in Washington, D. C. last week, counsel for the Wisconsin Public Service Commission opposed the proposed issuance of a power commission license to the Wisconsin Public Service Corporation for a construction of a dam on the Wisconsin River at Tomahawk, Wis. Kenneth McLeish, Engineer for the Wisconsin commission, presented numerous hydrological statistics to show the dam would not materially affect navigation on the river and therefore there was no federal jurisdiction involved.

### Story of Diatom Told in Talking Pictures

"Celite, the Story of the Diatom," was the subject of a talking motion picture shown at a meeting of the Northeast Wisconsin section of the American Chemical Society at the Institute of Paper Chemistry, Appleton, Wis., February 23. The picture presented the history and characteristics of diatomaceous silica in an accurate, educational yet entertaining fashion, as well as to illustrate the uses to which the commercial product is put.

## Detroit Paper Products Earns $111,407

The Detroit Paper Products Corporation reports for the year ended, December 31, 1937 certified by independent audit, net profit of $111,407, after depreciation, Federal income taxes and undistributed profits surtax, equal, after dividend requirements since July 19 on the new 6 per cent $25 par preferred stock, to 39 cents a share on 240,000 shares of common stock outstanding. This compares with $166,674 or 79 cents a share on 210,000 shares of common stock in the preceding year. There was no preferred stock outstanding in 1936.

## P. C. Toye To Manage New York Office

HOLYOKE, February 28, 1938—Announcement has been made that Philip C. Toye, 9 Wycoff avenue, this city, has been appointed manager of the new syndicate offices of the American Tissue Mills, Inc., to be opened at 200 Fifth avenue, New York city. President and Treasurer Benjamin F. Perkins stated that the office will open about March 1.

# Obituary

### Sidney Mitchell

Sidney Mitchell, an industrialist and paper manufacturer, died February 26, at Flower Hospital, New York, after a brief illness. He was 62 years old. He lived at the Union League Club and he had offices at 171 Madison Avenue, New York.

A native of Chicago, Mr. Mitchell was educated at the Armour Institute of that city. He started as a clerk with A. L. Dewar & Co. in 1895; from 1899 until 1905 he was manager of Milmine Bodman & Co., and was made a partner in the Milmine Bodman Grain Company in 1906.

In 1907 he became president of the American Strawboard Company, the United Boxboard and Paper Company and the Queen City Paper Company. He was subsequently president of the United Paper Board Company, the Benton & Fairchild Railway Company and the Leedsmere Corporation.

He was a member of the Metropolitan Museum of Art and belonged to the Union League, New York Yacht, Nantucket Yacht and American Guernsey Cattle Clubs.

Mr. Mitchell was unmarried. Surviving are a brother, Leeds Mitchell, former president of the Chicago Stock Exchange, and a sister, Mrs. Helen Mitchell Todd, wife of James Todd, former Illinois State's Attorney.

### John S. Foley

TORONTO, Ont., February 28, 1938.—John Stillman Foley, 64, widely known in the paper manufacturing industry in Ontario, Canada, died a few days ago at Iroquois Falls, Ont. He had been ill for the past five years. Born in Nova Scotia, he came from Rumford, Maine, to Iroquois Falls in May 1923 as foreman of the machine shop of the Abitibi Power and Paper Company.

## Protectoid Rechristened Lumarith

Because of overlapping fields and other considerations Celluloid Corporation decided to drop the name of Protectoid and give its transparent packaging materials the name of Lumarith—the plastic from which it is made.

Celluloid Corporation in announcing the change to the trade stated its reasons as follows:

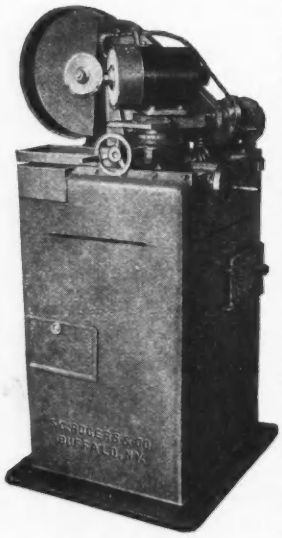
"Our company has pioneered the production of cellulose acetate plastic materials in this country using the trade name Lumarith. This name is now famous throughout the country and enjoys high repute because it stands for extreme versatility in color and working qualities in the field of plastics.

"Some years ago from the same basic material we developed an unusual transparent packaging material and incorporated the same high quality which characterized our plastics. We felt justified in introducing it to the market in 1930 because we had something that was distinctive and new in this field. We called it Protectoid.

"Our customers who use our Lumarith products will benefit by this change because all our advertising and promotional effort will be concentrated behind the one trade name, Lumarith."

## New Rogers CC3 Circular Knife Grinder

Samuel C. Rogers & Co., 191-205 Dutton avenue, Buffalo, N. Y., announce their new CC3 knife grinder for slitter knives (top or bottom) and all circular discs (solid or split) from 2 inches to 20 inches in diameter—any thickness, single or double bevel or flat face. It has a cabinet base, floor type, rugged grinder furnished in motor drive only and is built for efficient sharpening, providing precision accuracy and uniformity of grinding service—of substantial construction for continuous operation and quantity production.



A motor revolves the knife which is held on an interchangeable arbor, fastened in drive spindle, which runs in bronze bushings. The spindle is driven by a V-belt with sheave of variable pitch, adjustable to the proper circumferential speed depending on the diameter of knife to be ground.

The grinding wheel is driven by a separate ball bearing motor which is easily adjustable in any desired position with a working range from 2 inches to 20 inches in diameter.

A triple slide provides adjustments to meet all requirements of circular grinding, whether single or double bevel of any degree. Adjustable steel gibs take up wear. A graduated scale is provided for accurate setting. A grinding wheel 6 x 1/2 x 1/2 (also available with cup wheel) is mounted on the motor shaft which runs on ball bearings.

A motor driven wet grinding attachment with suitable splash guards is provided. It consists of a built-in two step coolant tank, equipped with centrifugal pump, piping and pet cocks for circulation of water. The cabinet has an accessible tool compartment. The machine is a completely self-contained unit with control switches conveniently located on the cabinet base.

Regular equipment includes one 1/3 horsepower motor, 3600 rpm for driving grinding wheel, one 1/3 horsepower motor, 1700 rpm for driving knife spindle, and water pump. Approximate shipping weight is 850 lbs., floor space 30 inches x 34 inches, extreme height 57 inches.

## New Paper Box Co. Formed

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., February 28, 1938.—National Containers Corporation Limited has been granted incorporation at Toronto with power to manufacture and deal in all kinds of paper boxes and containers and to buy and sell paper products. The capitalization is set at 80,000 shares. The provisional directors are John R. Huffman, A. D. MacArthur and William Doherty, all of Toronto.

**Uniformly clean paper costs less to sell. More than that, it actually costs less to make. The savings in seconds and rejects and the reduction in screening cost per ton more than justify replacement of old, inadequate screening equipment with big, modern Bird Screens . . . May we prove it?**

# BIRD MACHINE CO.
## SOUTH WALPOLE, MASS.

## BIRD SCREENS

YOU CAN MAKE MORE MONEY WITH NEW BIRD MACHINERY

## Louis E. Vose Is Made Vice-President

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., February 28, 1938.—Louis E. Vose, vice-president of Hollingsworth & Vose Company, East Walpole, Mass., was elected vice-president of the Smaller Business Association of New England, which was organized Saturday at the Boston City Club, to protect and promote members' interests in future plans of the federal and various state governments.

Miss Mary Dowd of the Corrugated Box Company of Worcester, Mass., was elected secretary, and Frances C. Heywood, of the Mavellum Corporation, Holyoke, Mass., and John W. Fitzgerald, of the Ames Safety Envelope Company of Boston, were chosen among the first group of directors.

At this meeting the first definite steps were taken towards organizing more than 100,000 small business firms of New England, as 50 persons, led by those who attended the recent Washington conference, met.

One of the organization's first acts was to authorize the calling of a mass meeting as soon as possible, to represent a program of action to the small business men of this section of the country.

Membership in the new group was tentatively restricted to resident owners or executives of business of New England, employing less than 500 persons. A majority of the prospective members operate on a scale far below the maximum.

The group's membership is expected to be drawn from 128,712 small business concerns in the six New England states, as shown by the 1935 census. Included among them are 15,244 manufacturers, 12,001 wholesalers and 114,044 retailers.

## Display Potdevin Machinery

Two illustrations are presented herewith of views in the exhibition rooms of the Potdevin Machine Company, 1221 38th street, Brooklyn, N. Y., which attracted a large number of visitors during Paper Week in New York, February 21-26 inclusive. The display is being continued for the benefit of out-of-town visitors.

Potdevin has assembled into its display room and adjoining erecting department, nineteen paper bag and sack machines, roll printing and allied paper converting units; all operating under manufacturing conditions.

The display room, 6,000 square feet in area, also contains numerous Potdevin stock machines. There are some forty wall exhibits of photographs, samples of bags, envelopes, aniline printing, oil-ink printing, and rotogravure printing, upon various papers, foils, cellulose materials, etc.

The shelves which line the room are devoted to exhibits of allied products such as rubber plates, aniline inks, cellophane adhesives, various cores, chucks, bearings, Static Eliminators, Recording Tachometers, in fact, all the most up-to-date accessories needed in modern bag plants.

The operating exhibit comprises equipment with a sales value exceeding $100,000. The exhibits of additional machinery under construction, such as waxing machines, water baths, printing presses, drying ovens, varnishing machines and a wide range of sheet coating equipment, exceed this sum in both plants.

## A New Line of Goulds Pumps

Simplicity of construction and design with unusual constructional strength and outstanding performance feature the new line of single stage, side suction, ball bearing centrifugal pumps, recently announced by Goulds Pumps, Incorporated, in its Bulletin No. 210.

Eighteen sizes of Goulds single stage centrifugal pumps give a capacity range of 5 to 1600 gallons per minute against heads up to 110 feet. All sizes are equally well adapted for either flat or V-belt, or motor drive.

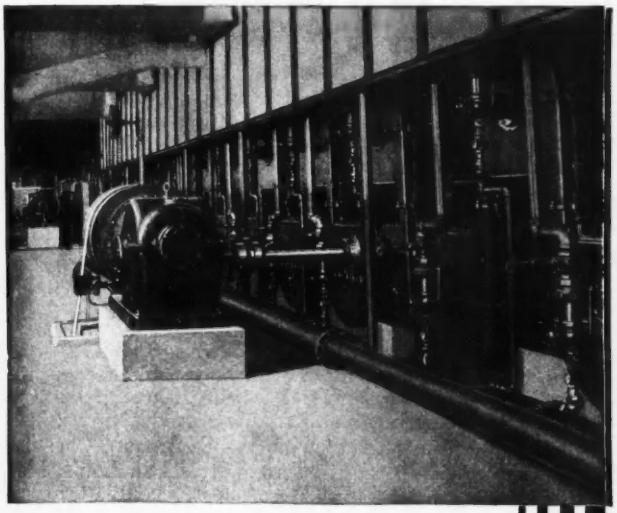
Copies of the folder, containing illustrations and data tables of the new line, are available by writing to Goulds Pumps, Incorporated, Seneca Falls, N. Y.

## Apologies to Authors Shannon and Cooper

Through an unfortunate error, Messrs. Shannon and Cooper were unintentionally omitted as authors of the article, "Constant Speed by Electronic Regulator," on page 23 of the January 27 issue. John Shannon is the well known electrical engineer of the Dowingtown Paper Company, and A. M. Cooper is in the Industrial Division, Westinghouse Electric and Manufacturing Company, Philadelphia, Pa.

VIEWS IN DISPLAY ROOM OF THE POTDEVIN MACHINE COMPANY.

# BELOIT *high-speed* DRYER CONDENSATE REMOVER



SAVES HORSE-POWER AND STEAM THROUGH GREATER REMOVAL OF WATER AND AIR

**MAINTAINS MAXIMUM DRYING EFFICIENCY *always***

HERE'S a comparatively new development for dryers that saves tremendously in horse-power and steam by maintaining maximum drying efficiency in the dryers.

•

The *Beloit* Way is the *Modern* Way

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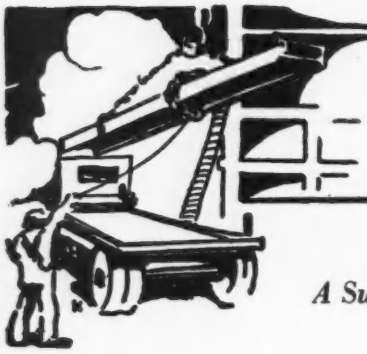
**BELOIT IRON WORKS, Beloit, Wis., U. S. A.**

The BELOIT

BELOIT IRON WORKS PAPER MACH'Y BELOIT WIS.



# CONSTRUCTION NEWS

*A Summary of Vital Facts Regarding Construction, Financing and Operation of Pulp and Paper Mills*

## General Construction News

**Eau Claire, Mich.**—Modern Pac, Inc., recently organized to manufacture a new type of fruit package made from corrugated fiber board, has approved plans for new plant on local site, for which superstructure will be placed under way at once. It will be one-story, reported to cost close to $40,000, with equipment. Plant is scheduled to be ready for operation early in the spring. C. H. Richard and F. A. Bowerman, both of Eau Claire, head new organization.

**Clinton, Iowa**—Cellophane Division, E. I. du Pont de Nemours & Co., du Pont Building, Wilmington, Del., plans to begin erection of new plant at Clinton the latter part of March, covering the initial unit of large project, previously referred to in these columns. Buildings will comprise a main five-story manufacturing unit, three-story office and operating building, and one-story power plant. Also several smaller one-story structures for storage and distribution, and other service. Cost reported over $2,000,000, with equipment. This will be the first of five plant units, each to cost close to like amount, with a sixth such unit now under advisement. Entire projetc will cost in excess of $10,000,000. Company engineering department, first noted address, is in charge, with S. E. Sawin engineer on site.

**Richmond, Ind.**—Johns-Manville Corporation, N. W. Seventh street, Richmond, manufacturer of roofing products, fiber specialties and other building products, has approved plans for new addition to local fiber conduit manufacturing works, to be one-story, including alterations and improvements in existing plant. Work is estimated to cost close to $60,000, with equipment. General contract has been awarded to the Hughes-Foulkrod Company, Schaff Building, Philadelphia, Pa., and work will be placed under way at once. Francisco & Jacobus, 511 Fifth avenue, New York, N. Y., are architects and engineers. Main offices of company are at 22 East 40th street, New York.

**Springhill, La.**—In connection with new sulphate pulp mill of the Southern Kraft Corporation, 220 East 42nd street, New York, N. Y., at Springhill, the municipality has arranged a fund of about $110,000, for extensions and improvements in water lines and sewerage system, primarily to handle the pulp mill requirements. Bids are scheduled to be asked at early date. E. T. Archer & Company, New England Building, Kansas City, Mo., are consulting engineers. As previously noted in these columns, the pulp mill will comprise several large units, with equipment for an initial capacity of about 220,000 tons of kraft paper and board per annum. Entire project will cost in excess of $1,200,000. Plant is scheduled to be ready for service during the coming summer. Company is a subsidiary of the International Paper Company, first noted address.

**New York, N. Y.**—The Knickerbocker Container Corporation, care of H. J. Leffert, 61 Broadway, New York, attorney and representative, recently organized, is said to be planning early operation of local plant for the manufacture of paper and board containers, cartons, etc.

**Indian Orchard, Mass.**—Stockholders of the Fiberloid Corporation, Bircham Bend, Indian Orchard, manufacturer of cellulose products, etc.; have approved a merger with the Monsanto Chemical Company, 1700 South Second street, **St. Louis, Mo.,** recently referred to in these columns, and latter company will assume management of property at early date. A large expansion program has been under way at the plant to provide for increased capacity, and facilities will be placed in service at early date.

**Chicago, Ill.**—General Roofing & Supply Company, 5918-22 South Ashland avenue, roofing papers and other roofing products, has awarded general contract to G. Zimmerman, 6455 South Maplewood avenue, for one-story addition to plant, 44 x 48 feet, for which superstructure will proceed at once. W. E. Sammons, 3522 West Sixtieth place, Chicago, is architect.

**Chicago, Ill.**—Moore-Boxes, Inc., recently formed to manufacture corrugated and other paper boxes and containers, will soon have new local plant ready for operations and plans large output. As recently noted in these columns, company has leased about 15,000 square feet of floor space for factory in building at 1325 Carroll avenue. A portion of the space will be used for storage and distribution. L. T. and W. D. Moore are heads.

**Kalamazoo, Mich.**—D. Graff & Sons Company, East Willard street, paper stocks, is planning rebuilding of portion of storage and distributing plant, recently damaged by fire. An official estimate of loss has not been announced.

**Brooklyn, N. Y.**—The Aetna Paper Company, Inc., 1011 Gates avenue, has filed plans for extensions and alterations in its three-story storage and distributing building at 1009 Gates avenue. Work will be placed under way at once. John J. Carroll, 225 Greene avenue, Brooklyn, is architect.

**Middletown, Ohio**—The Crystal Tissue Company, manufacturer of tissue, kraft and other paper stocks, has work in progress on superstructure for

new power house at mill, recently referred to in these columns, and building will be ready at early date for equipment installation. It will be ready for service early in the spring. Awards have been made for turbo-generator unit and other new equipment. Walter I. Barrows, Reibold Building, Dayton, Ohio, is consulting engineer.

### New Companies, Etc.

**Long Island City, New York, N. Y.**—The Cone Paper Products Corporation has been chartered with capital of $20,000, to deal in paper products of various kinds. New company is represented by B. Robbins, 25 Warren street, New York.

**Buffalo, N. Y.**—The Independent Wall Paper Company, Inc., has been incorporated with capital of $10,000, to deal in wall paper stocks. New company is represented by Bennett & Bennett, Erie County Bank Building, Buffalo, attorneys.

**Boston, Mass.**—The Boston Container Company, 29-33 Stillings street, South Boston, has been incorporated with capital of $50,000, to manufacture and deal in paper boxes and other containers. Edmund L. Pendleton is president; and Benjamin Weiner, treasurer.

**Watertown, N. Y.**—The Sherman Paper Company, Watertown, operating mills at Felt's Mills and Great Bend, both New York, for manufacture of writing and other paper stocks, board liners, etc., has been adjudged bankrupt by Federal Judge Frederick H. Bryant, Syracuse, N. Y.

**New York, N. Y.**—The Lincoln Paper Corporation has been incorporated with capital of $20,000, to deal in paper goods of various kinds. New company is represented by George Rudnick, 302 Broadway, New York, attorney.

**New York, N. Y.**—The Knickerbocker Decalcomania, Inc., has been chartered with capital of $5000 to manufacture and deal in decalcomania transfers and allied paper specialties. New company is represented by Hays, Wolf, Kaufman & Schwabacher, 30 Broad street, New York, attorneys.

**New York, N. Y.**—The Gotham Container Corporation has been organized with capital of 200 shares of stock, no par value, to manufacture and deal in paper and paperboard containers of various kinds. New company is represented by the Albany Service Company, 315 Broadway, New York.

**Englewood, N. J.**—The Englewood Paper Supply Company has been incorporated with capital of 1000 shares of stock, no par value, to deal in paper products of various kinds. New company is represented by Irving Dincin, 55 West Palisade avenue, Englewood, attorney.

**New York, N. Y.**—The Wall Paper Guild of America, Inc., has been chartered with nominal capital of $2000, to advance and promote the use of better grades of wall paper. New company is represented by the Albany Service Company, 315 Broadway, New York.

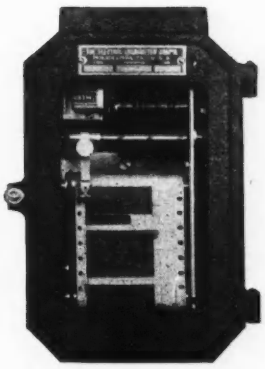
## Champion Paper Gets Safety Award

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, February 28, 1938.—Safety awards were presented to the Champion Paper and Fibre Company of Hamilton, Ohio, Wednesday night at the first annual dinner of the Hamilton Industrial Safety council. The Champion won the award on the basis of least accidents per man hours worked.

## Tetco Speed Recorder

An improved type of recorder, which is valuable for any application where speed is important, or where a production count or measure is desirable, is illustrated herewith. It is especially designed to record speed, production, and operation of any paper machine, and to show breaks. Using a waxed chart, with steel stylus, no ink, ribbon, or carbon paper are required, thus eliminating constant servicing, and each chart provides for three weeks continuous operation. The speed or production curve is made by measuring distance traveled or revolutions made during definite time periods, usually of ½ minute interval. The equipment is essentially an automatic repeating and recording counter. It gives the same data as would be obtained by an observer who measured the exact production or distance for each time interval, and plotted these amounts as a speed curve. In addition, the totalizer sums up the production for any number of hours or days, in any required unit of measure.



The results are more accurate than would be obtained by an observer with a stop-watch as the measuring, starting and stopping are all done by means of electric contacts.

The mechanism is entirely different from that used in other forms of speed measuring instruments. It is essentially a combination of a make and break contactor—in paper mill installations usually driven from a spring roll, or idler roll—electrically connected to a step-by-step motor in the recording instrument, which follows its motion. This motor drives a pen arm across the chart by means of gears and feed screw as shown in the illustration. At definite and uniform time intervals the master clock which is also a part of the equipment, makes contact to disengage the feed screw which is revolved backwards by a return spring, restoring the pen arm to zero. The same contact feeds the chart forward.

The above cycle of operations when repeated, produces a series of parallel lines, the length of which is proportionate to speed or production. The ends of the lines form a speed curve. The recorder is manufactured by THE ELECTRIC TACHOMETER CORPORATION, 1350 Spring Garden street, Philadelphia, Pa. Write for Bulletin 138.

## Frank W. Warren Sails for Paris

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., February 28, 1938.—Frank W. Warren, regarded as an expert on the manufacture of paper, and manufacturers' consultant, sailed last week for Paris where he has made his home for several years. He carried with him signed contracts to sell rayon pulp in Europe for a well known mill of this country and also plans to sell cotton linters from this country for pulping abroad. He is a brother of John J. Warren, formerly prominently identified with the paper industry at Brownville.

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## COMING EVENTS IN THE PAPER INDUSTRY

NEW ENGLAND SECTION. Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Nonotuck Hotel, Holyoke, Mass.

DELAWARE VALLEY SECTION. Technical Association of the Pulp and Paper Industry—Second Friday of each month at the Engineers Club, Philadelphia, Pa.

LAKE STATES SECTION, Technical Association of the Pulp and Paper Industry— Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

KALAMAZOO VALLEY SECTION, Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park,American Hotel, Kalamazoo, Mich.

AMERICAN PULP AND PAPER MILLS SUPERINTENDENTS ASSOCIATION. Annual meeting, Royal York Hotel, Toronto, Ont., June 22-24.

## FOR MORE EQUITABLE TAX LAWS

Now that the protest of small business men has been added to that of big business men it is clear that nearly all business men are strongly in favor of a tax cut to help industry and trade recover from the current recession. Just how far the Administration will go in this matter remains in doubt but a substantial reduction is impending in both the undistributed profits tax and the capital gains levy. The greatest incentive to grant this relief and permit industry a chance to go ahead is President Roosevelt's apprehension that the present decline in revenue will so lower the Government's receipts that the New Deal cannot continue to function on a seven billion dollar annual budget. In this connection it may be said here that the plan of the Administration is not seriously concerned in making economies and reducing the present unprecedented cost of government, but looks forward to a higher revenue to pay expenditures. As the President has said many times, he is committed to a seven billion dollar budget and an increase in national administration costs in the not too encouraging long range view of our national financial position at this moment.

Hostility to the so-called "third basket" is apparently increasing and business may feel encouraged at the strong sentiment developed in the Senate Finance Committee the past week. Although repeal of the undistributed profits tax has been advocated there is little hope of abandoning the principles of this tax, though a modification of existing rates seem reasonably certain. Sentiment was also apparent for a reduction of the adjusted rates fixed by the House Committee on capital gains. Chairman Doughton of the House Committee said on February 26, "Any cause for hesitating on the part of business to go forward, so far as taxes are concerned, should now disappear."

In the opinion of Godfrey N. Nelson, lawyer, and tax expert of The New York Times Company, the tax system should be revised and he advised a return to the old principles in taxation. "A complete overhauling of the revenue laws was promised last year," Mr. Nelson said. "Having encountered a new business recession, however, the Treasury favors the postponement of a complete revision, probably on the theory that the present plan, however faulty, can be counted on to produce more revenue from a depleted national income than what might be counted on from a more rational plan and an increased national income.

"What we need most, is not a new or untried system of taxing business but a return to the principles which made the income tax the greatest single revenue-producing instrumentality of the Federal Government. This calls not alone for the abandonment of taxing devices which tend to destroy business confidence, but for the readoption of those equitable features which for many years were regarded as an integral part of the tax system.

"What constitutes a sound basis of corporate taxation is, of course, only a relative proposition. The more important items which seem to contribute to the solution of the problem are:

First. The undistributed profits tax should be entirely eliminated.

Second. Recognition of capital gains should be limited to capital assets held for one year or less and capital losses, similarly determined, should be deductible without limitation as to amount.

Third. Net business losses should be permitted to be carried over into two next succeeding subsequent years.

Fourth. The corporate tax should be imposed at a flat rate and not at progressive or graduated rates.

Fifth. While no restrictions should be placed upon the current retention of earnings for expansion or other purposes, some practicable curbs on unreasonable accumulations should be imposed. In this connection the provision of Section 102 of the Revenue Law, requiring the Treasury to prove intent or purpose to avoid the tax on shareholders should be removed. New administrative machinery should be set up to provide for a continuous study of cases

coming within the purview of this section, with enlarged enforcement powers.

"Much has been said about the Administration's 'price policy' with a view to creating a 'balance' among prices. For this purpose the year 1926 has been selected as a criterion or 'price level'. If the year 1926 has been selected as a standard for 'prices', why not go further and adopt as standard the attitude of government then shown towards business as well as the plan of taxation then in vogue. The country as a whole was in a state of good financial health in 1926; both the Treasury and business participated in the prosperity then enjoyed.

"In spite of the fact that in 1926 the Congress enacted a retroactive individual surtax reduction of from 40 to 20 per cent, effective from January 1, 1925, the revenue from this source was maintained. In the same year the tax on corporations was increased to 13½ per cent and the revenue from this tax was the largest of any year since the World War period. Practically all of the equitable provisions here suggested were in effect in 1926. A return to the 'principles of taxation of 1926' would unquestionably prove a spontaneous rejuvenation of business activity."

## Stevens & Thompson Officers Continue

[FROM OUR REGULAR CORRESPONDENT]

HOOSICK FALLS, N. Y., February 28, 1938.—Announcement is made that officers and directors of the Stevens & Thompson Paper Company, named at a corporate reorganization of the firm to handle an increased volume of busines, will continue in that capacity under an order signed by Federal Judge Cooper. Howard B. Thompson will continue as president. Decision was deferred on the petition for court approval of the issuance of $250,000 in certificates of indebtedness to take priority over the bond issue of $495,000 due in 1942. A delay until March 5 was taken on this petition while other court cases on this point will be reviewed. The present financial setup precludes the possibility of raising the $250,000 needed for repair of mill property and equipment and the purchase of raw materials to meet the annual sales orders of the firm which have advanced to the $2,000,000 mark. The firm enters the reorganization without a creditor and with receivable accounts, according to counsel, totaling approximately $100,000. Objection to immediate approval was made by John Broderick, mortgage trustee, and George Hall, counsel for bondholders, both of whom desired more time to investigate certain points of the reorganization plan.

## Boston Paper Men To Dine March 16

BOSTON, Mass., February 28, 1938.—In honor of two of the old-time members, John E. A. Hussey and John W. Vivian, the Fifty-second anniversary banquet of the Boston Paper Trade Association will be held March 16 at the Algonquin Club. Governor Charles F. Hurley will be the guest of honor. The annual meeting of the organization is to be held the same evening.

## Production Ratio Report

These statistics are based upon paper production reports to the American Paper and Pulp Association.

COMPARATIVE MONTHLY SUMMARIES

| Months | 1938(c) | 1937(c) | 1936 | 1935 | 1934 |
|---|---|---|---|---|---|
| January | 63.8% | 90.3% | 76.1% | 65.8% | ..... |
| February | ..... | 90.1% | 77.9% | 70.0% | ..... |
| March | ..... | 90.3% | 76.0% | 70.5% | ..... |
| April | ..... | 92.1% | 82.3% | 70.0% | ..... |
| May | ..... | 90.6% | 81.6% | 69.4% | ..... |
| June | ..... | 87.3% | 80.7% | 72.3% | ..... |
| July | ..... | 81.8% | 77.3% | 64.9% | ..... |
| August | ..... | 82.9% | 81.5% | 70.9% | ..... |
| September | ..... | 78.6% | 80.5% | 71.9% | 58.2% |
| October | ..... | 73.5% | 87.6% | 75.6% | 64.7% |
| November | ..... | 61.9% | 88.0% | 75.3% | 61.7% |
| December | ..... | 54.5% | 85.9% | 71.2% | 59.6% |
| Year Average | ..... | 80.6% | 81.3% | 70.5% | ..... |
| Year to Date | | | | | |
| First 7 weeks | 65.1% | 90.0% | 76.7% | 67.1% | ..... |

COMPARATIVE WEEKLY SUMMARIES

| CURRENT WEEKS, 1938 | | CORRESPONDING WEEKS, 1937 | |
|---|---|---|---|
| *January 15 | 62.3% | January 16 | 90.2% |
| *January 22 | 66.0% | January 23 | 88.9% |
| *January 29 | 67.9% | January 30 | 90.1% |
| *February 5 | 65.9% | February 6 | 88.1% |
| *February 12 | 67.8% | February 13 | 90.2% |
| *February 19 | 68.1% | February 20 | 90.4% |

The following statistics show the number of mills reporting by ratio groups:

| | Number of Mills Reporting, Current Weeks | | | | | |
|---|---|---|---|---|---|---|
| Ratio Limits | Jan. 15, 1938 | Jan. 22, 1938 | Jan. 29, 1938 | Feb. 5, 1938 | Feb. 12, 1938 | Feb. 19, 1938 |
| 0% to 50% | 127 | 116 | 108 | 109 | 105 | 67 |
| 51% to 100% | 187 | 197 | 200 | 195 | 196 | 132 |
| Total Mills Reporting | 314 | 313 | 308 | 304 | 301 | 199 |

* Subject to revision until all reports are received.
(c) Basic capacity data have been adjusted to correspond with ratings reported by individual companies.

PAPERBOARD OPERATING RATIOS

According to reports from the National Paperboard Association, per cents of operation, based on "inch-hours" were as follows:

| Mos. | 1937(e) | 1936 | 1935 | 1934 | Mos. | 1937(e) | 1936 | 1935 | 1934 |
|---|---|---|---|---|---|---|---|---|---|
| Jan. | 80% | 61% | 61% | .... | July | 67% | 69% | 59% | .... |
| Feb. | 86% | 67% | 67% | .... | Aug. | 74% | 75% | 65% | .... |
| Mar. | 87% | 68% | 67% | .... | Sept. | 70% | 76% | 69% | 62% |
| Apr. | 89% | 70% | 61% | .... | Oct. | 66% | 82% | 76% | 63% |
| May | 86% | 68% | 61% | .... | Nov. | 56% | 79% | 70% | 56% |
| June | 75% | 68% | 65% | .... | Dec. | 46% | 74% | 60% | 52% |

Week end. Jan. 15, 1938—52%
Week end. Jan. 22, 1938—58%
Week end. Jan. 29, 1938—60%
Week end. Feb. 5, 1938—59%
Week end. Feb. 12, 1938—60%
Week end. Feb. 19, 1938—60%

(e) Basic figures revised to include new members of the National Paperboard Assn.

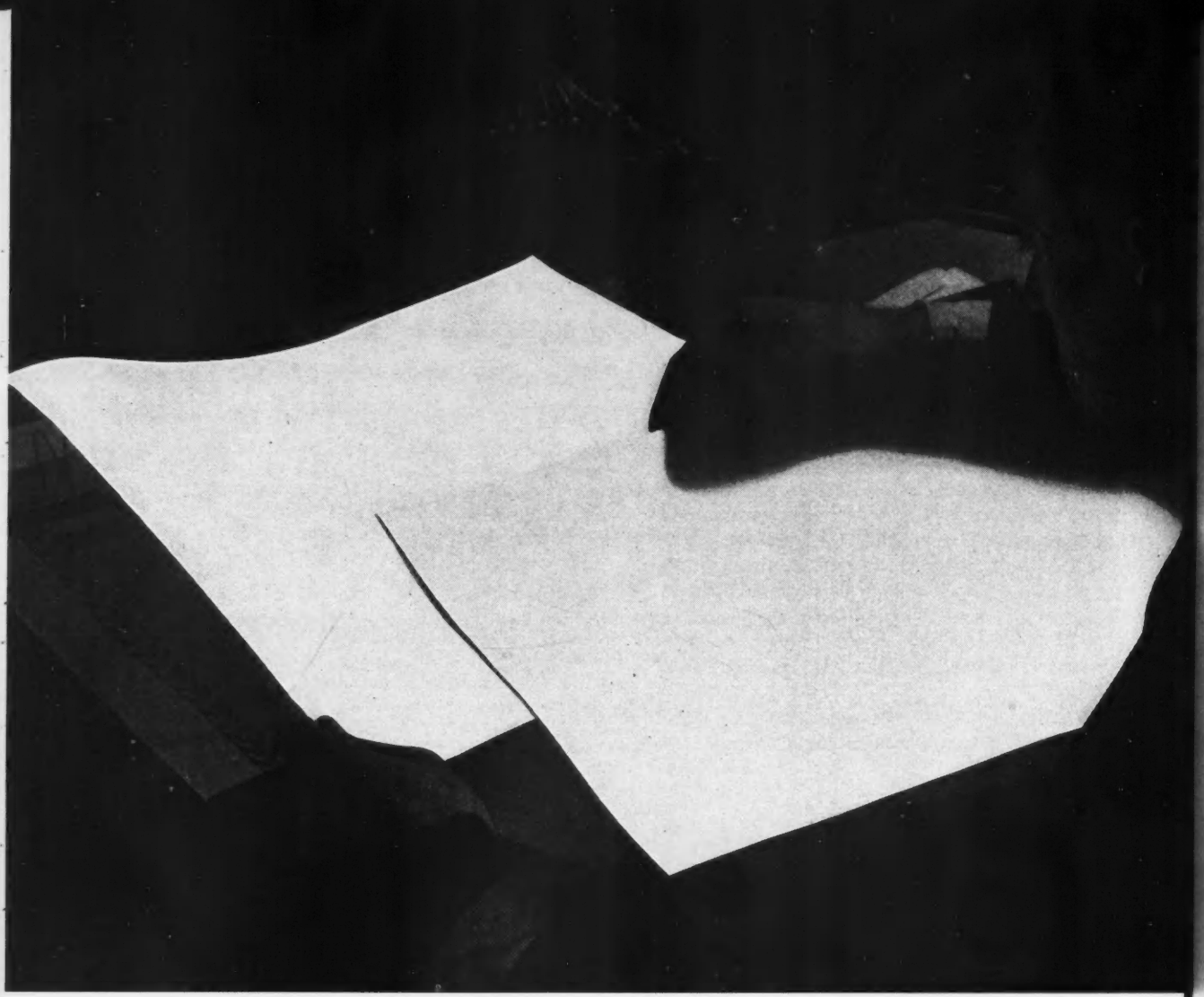
## Brilliant Colors Added to Wrenn's Line

In addition to the complete line of attractive tints available in the Wrenn line of enameled blotting, manufactured by the Wrenn Paper Company, Middletown, Ohio, three new brilliant colors have recently been included. The colors are goldenrod, turquoise and orange.

This establishes a precedent for enameled blotting with Wrenn first to recognize a pronounced demand among printers and users for brighter shades — and first to pioneer and adopt them.

The advantages of these bright shades lie in the greater attention value they give to sales blotters printed in either one, two, three or more colors — the brilliant background in each case doing its share in this direction.

The Wrenn Paper Company is constantly conducting research in an effort to keep pace with the desire for something new and different — and at the same time to improve if possible its present recognized standards of quality and maximum absorbency.



# Better Color Is Always in Demand

And many manufacturers are enjoying greater sales by meeting the demand with papers made whiter with Zinc Sulphide Pigments. Papers that are more opaque, too, with less "show through" to tire the eye or divert the mind.

Several types of such papers are being featured by progressive dealers. And all the types are identified by this improved color which bespeaks quality and which makes them attractive to the consumer.

Through the wide range of Cryptone and Albalith Zinc Sulphide Pigments, the paper manufacturer is offered a convenient means of producing these new papers of better color and opacity.

If such characteristics are of interest in your market, we shall appreciate an opportunity to discuss your problem with you. Our Research Department is the largest in the world devoted to the development and application of white pigments.

THE NEW JERSEY ZINC COMPANY
160 FRONT ST., NEW YORK

**ZINC SULPHIDE PIGMENTS IN PAPER**

Section of the
Technical Association of the Pulp and Paper Industry

Edited by Ronald G. Macdonald, Secretary

# Review Of The Paper Industry Literature

Abstracts Compiled By the Abstracts and Bibliography Committee of the Technical Association of the Pulp and Paper Industry, A. Papineau-Couture, John F. Ohlson and Clarence J. West, Chairman of the Committee.

**Copies of United States Patents can be obtained from the United States Patent Office, Washington, D. C., for 10 cents each. Send currency, not stamps.**

## Sizing

**Paper Sizing Experiments.** S. Samuelsen and Per Esmann. Papir-J. 5, no. 8:91-102 (April 30, 1937); Bull. Inst. Paper Chem. 7:386.—The different theories of rosin are reviewed, none of which can yet be applied satisfactorily to all types of sizes and sizing methods. The precipitation of the size and its fixation upon the fibers can be considered the main reactions. The conversion of the size caused by the lime or magnesium salts of the process water and an eventual reciprocal action between the size and fillers on one hand, and the alum and lime or magnesium salts of the water, as well as the ash constituents of the fibers, on the other hand, form secondary reactions. The authors used different sizes in their studies. When prepared in different ways, the same sizes can vary in different mills. The experiments indicate that the sizing is affected by the beating degree of the pulp and the *p*H. When distilled water is used, the sizing strength increases with Bewoid size at higher beating degrees, and decreases with Delthirna size. When both sizes are mixed, the beating degree does not seem to play any role. Bewoid size results in better sizing strength with plain than with distilled water, a fact which seems to indicate that the "foreign" substances in the water do exert an influence on the process. In spite of the large amount of literature on sizing, the most suitable properties of the process water in the sizing process are not yet known; the authors intend to study this subject during the coming year.—C.J.W.

**Silicate of Soda.** H. Postl. Pappen- u. Holzstoff-Ztg. 44, no. 21: 231-232 (May 21, 1937); Bull. Inst. Paper Chem. 7:368.—Brief reference is made to certain applications of silicate of soda for sizing board and shipping containers, as well as for pasting together the individual plies. Directions for preparing a suitable size are given.—C.J.W.

**The Use of Silicate of Soda As a Sizing Agent and Improver in Paper Making.** F. Freeth. Paper Making F. Freeth. Paper Maker 93: TS63-64, 69-70 (April, May, 1937).—An outline of the manufacture and composition of commercial silicates of soda with a discussion of the action, manner of use and merits of silicate of soda in paper sizing.—A.P.-C.

**Hardening Proteins Such As Those of Glue or Casein Used on Papeer As Sizing.** Christian J. Wernlund, assignor to E. I. du Pont de Nemours and Co. U. S. pat 2,073,666 (March 16, 1937).—A web of fibrous material is provided with a coating containing a protein, aluminum hydroxide or other relatively insoluble inorganic compound forming with an acid a protein-hardening agent, a volatile alkali such as ammonia in an amount substantially to prevent solution of the inorganic compound, and a compound such as ammonium formate or formamide capable of hydrolyzing to form an acid, and the treated material is subjected to drying conditions (suitably by heating). (Cl. 91-68).—A.P.-C.

**Sized Paper.** Francis G. Rawling, assignor to West Virginia Pulp and Paper Co. Can. pat. 366,-283 (May 25, 1937).—In a closed vessel a pulp suspension is mixed with sizing ingredients including an acidic precipitant and a filler containing a finely divided calcium salt capable of reacting with the ingredients to produce a gas, the filler and sizing ingredients are permitted to react to a limited extent and the mixture is maintained out of contact with the outside atmosphere under conditions to prevent escape of substantial amount of the gas up to the point of delivering to the wire of the paper machine.—A.P.-C.

**Sizing and Filling Paper Webs.** Leonard R. Growdon, assignor to The Mead Corp. Brit. pat. 459,125 (Dec. 29, 1936).—Additional paper-forming material to compensate for that lost during web formation is added to the wire side of a wet pulp web and suction is applied to the other side to draw material into the web, paper thus formed being free from suction-roll marks.—A. P.-C.

**Process for the Manufacture of a Solid Rosin Emulsion.** Landwirtschaftliche Genossenschaft zur Verwertung der Harzproduckte, Piesting, Austria. Nor. pat. 57,327 (June 6, 1935).—Natural rosin in the molten condition is exposed in a finely divided condition to the influence of air, whereup water is slowly pressed into the rosin with the simultaneous addition of a protective colloid. And in conclusion, an easily dissociable ammonia salt is added in a gaseous or liquid form—J.F.O.

**Rosin Investigations of Coniferous Woods.** R. Trendelenburg and O. Schaile. Papier-Fabr. 35, no. 26: 221-30 (June 25, 1937). The author begins by mentioning Germany's need for a domestic supply of rosin and mentions sources in the manufacture of pulp. Previous methods for the production of rosin are briefly described and then the purpose of this investigation. Rosin determinations were made on pine wood obtained from various sections, on logs of different ages, influence of drying and the change taking place during storage, and relation of the rosin content to other properties of the wood.—J.F.O.

**Process for the Manufacture of a Rosin Size for the Paper Industry.** Landwirtschaftliche Genossenschaft zur Verwertung der Harzprodukte in Piesting. Aust. pat. 149,209 (Dec. 15, 1936); addition to pat. 142,776. The natural rosin in a finely divided state is subject to the action of air.—J.F.O.

**Method for the Surface Sizing of Paper with Animal Glutin Size.** Richard Silberberger. Aust. pat. 147,807 (July 15, 1936). Urea or thiourea and formaldehyde or trioxymethylen are mixed in the cold giving an additive compound, which is used for the sizing.—J.F.O.

**Sized Paper.** Gerald Haywood, assignor to West Virginia Pulp and Paper Co. U.S. pat. 2,090,002, (Aug. 17, 1937).—Paper stock containing a substantial amount of a finely divided filler composed largely of a calcium salt (such as calcium sulphite or calcium phosphate) is both engine sized and surface sized, giving a product closely resembling coated paper. (Cl. 91-68).—A.P.-C.

**Manufacture of Sized Papers.** Oscar F. Neitzke, assignor to Bennett, Inc. U.S. pat. 2,093,337 (Sept. 14, 1937).—The nonvolatile residue remaining on the purification of tallöl by distillation is emulsified with an aqueous alkali. solution and used for sizing paper. (Cl. 92-21).—A.P.-C.

**Sizing with Sodium Silicate.** Wochbl. Papier-Fabr. 68, no. 15:286; no. 18:343 (April 10, May 1, 1937); B.I.P.C. 8:71.—The inquirer asks for information concerning the experience of others in sizing paper with silicate of soda, and the correct percentage in which wheat starch and silicate of soda should be mixed. Water glass is generally used in addition to rosin size when a hard and water-resistant paper with a good rattle is desired. Best retention is obtained when first the alum, then the rosin size, and finally the water glass are added to the beater. Water glass is also used alone or in combination with starch; the amount will vary according to type of paper from 1 to 4½-5 per cent.—C.J.W.

### Specialties

**Manufacture of Felted Proofed Fibrous Materials.** Truman A. Pascoe and Roy P. Hella, assignors to Cellovis, Inc. U. S. pat. 2,069,771 (Feb. 9, 1937).—A sheet is formed of a furnish comprising wet beaten stock, a soluble cellulose derivative and a plasticizer. The sheet may be coated on one or both sides with a solution of the plasticized cellulose derivative.—A.P.-C.

**Paper Article and Method of Making the Same.** George J. Manson, assignor of one-half to Nathaniel L. Foster. U. S. pat. 2,068,299 (Jan. 19, 1937).—Two or more plies of paper are cemented together by means of a light-colored adhesive consisting mainly of rosin to which is preferably added a small proportion of mineral and (or) glyceride oil. Trim and other waste portions can readily be reworked in the beater.—A.P.-C.

**Manufacture of Partially Soluble Felted Fibrous Articles.** W. Bartlett Jones, assignor to Cellovis, Inc., U. S. pat. 2,069,763 (Feb. 9, 1937).—A mixture of beaten wood pulp and nitrated wood cellulose is sheeted on a paper machine.—A.P.-C.

**Distinctive Paper and Method of Making Same.** Burgess W. Smith, assignor to The Todd Co., Inc., U. S. pat. 2,067,988 (Jan. 19, 1937).—Paper is immersed in a solution that permanently reduces the surface tension of the sizing to the desired extent (suitably, equal volumes of 10 per cent borax and 5 per trisodium phosphate solutions, to which is added 1 per cent of sodium lauryl sulphonate), and while wet suitable words or indicia are impressed on the paper. The words or indicia are invisible when the paper is dry, but are "developed" when the paper is wetted. Any printing subsequently applied to the paper is preferably made with a water-soluble ink.—A.P.-C.

**Shelf Paper.** Fred A. Conrad, assignor to American Lace Paper Co. U. S. pat. 2,067,233 (Jan. 12, 1937).—In order to prevent curling of the printed or embossed margin of shelf paper, a stiffening and waterproofing coating is applied to both sides of each margin. The back may suitably be coated with the following composition: lithopone 5 per cent, white cement 35 per cent, clay 5 per cent, coatex (a trademarked adhesive) 7 per cent, water 50 per cent; and the face with the following composition: lithopone 64 per cent, ghatti gum 2 per cent, gum arabic 6 percent, color 3 per cent, water 25 per cent.—A.P.-C.

**Blotting Paper Stock Advertizing Card and Process of Forming Same.** Chauncey K. Miller. U. S. pat. 2,061,844 (Nov. 24, 1936).—A selected portion of the blotting paper is subjected to compression and its surface is sealed to render it of non-blotting character.—A.P.-C.

**Decorating Sheet Material Such as Fibrous Floor Coverings.** Elbert A. Corbin, Jr., and Ellwood W. Wolf, assignors of one-third to William C. Biddle. U. S. pat. 2,060,041 (Nov. 10, 1936).—A sheet of printed tissue is placed over a sheet of "Japanese tissue or the like and is laminated with it by a liquid rubber or latex composition and may be used as a decorative surface.—A.P.-C.

**Process and Apparatus for Manufacturing Artificial Leather.** Ernst Mahler and John B. Catlin, assignors to Paper Patents Co. U. S. pat. 2,069,257 (Feb. 2, 1937).—From 10 to 30 plies of light creped tissue paper are unwound in the form of two bats each made up from 5 to 15 plies from a pair of parent rolls and fed together into the nip of a horizontal 2-roll press. Rubber latex solution is continuously flowed into the roll nips on the outer side only of the bats. After slight pressing, the saturated sheet is passed to a drier. If thicker material is desired, similar tissue paper bats are applied to the outside of the sheet, and the whole is passed through a press similar to the first one, where latex is applied in the same way. As many additional such units are used as may be necessary to obtain the desired thickness.—A.P.-C.

**Process for the Manufacture of Artificial Leather.** Blaupot Ten Cate B. G. Belg. pat. 417,563 (Oct. 31, 1936).—A loose fibrous mass is treated with a small amount of an agglutinant, and is impregnated with a rubber solution or dispersion by passing between a pair of rolls and feeding the rubber at the nip of the press.—A.P.-C.

**Apparatus for Producing Laminated Materials.** Kimberly Stuart, assignor to Garrett B. Linderman, Jr. U. S. pat. 2,068,893 (Jan. 26, 1937).—In the production of laminated material in which a layer of aluminum foil is interposed between two layers of paper, the three sheets (to which adhesive has been applied by appropriate means) are fed successively through two two-roll presses. Each press consists of a yielding roll in contact with one of relatively harder material, the rolls of the second press being softer than those of the first press. The softer roll of the second press is mounted so that it is adjustable about the periphery of the harder roll.—A.P.-C.

**Shingle.** Milton R. Beasley, assignor to Bird & Son, Inc. U.S. pat. 2,070,571 (Feb. 16, 1937).—An ornamental shingle is formed of an asphalt-saturated felt base on one side of which are applied successively a coating of asphalt, a layer of mineral surfacing, a second layer of asphalt and second layer of mineral surfacing; and there is impressed a shallow design or pattern so as to closely resemble the grain of wooden shingles.—A.P.-C.

**Composite Flooring Material.** Harold C. Harvey, assignor to The Agasote Millboard Co. U. S. pat. 2,069,720 (Feb. 2, 1937).—A soft porous pulp board is dipped into a hot oxidizable oil so as to impregnate the surface of the board to the desired extent, and is then baked to oxidize the oil and harden the impregnated surfaces. A thin sheet of rubber (preferably ribbed) or linoleum is secured to one side of the treated board.—A.P.-C.

**Construction Material.** Albert C. Fischer, assignor to The Philip Carey Manufacturing Co. U.S. pat. 2,067,707 (Jan. 12, 1937).—A mixture of fibrous filling material, dense waterproofing mastic and a slow-drying lasting adhesive sticky to the touch, is molded into sheet form.—A.P.-C.

**Roofing or Like Element.** Otto A. Heppes and Lester Kirschbraun, assignors to The Patent and Licensing Corp. U. S. pat. 2,071,229 (Feb. 16, 1937).—The invention provides a composition shingle of stepped or variable thickness, the butt portion being thickest and the upper end thinnest with intermediate areas of intermediate thicknesses defined by more or less pronounced shoulders.—A.P.-C.

**Roofing Material.** Robert T. Johnston, assignor to Bakelite Corp. U. S. pat. 2,060,083 (Nov. 10, 1936).—A base such as a felt base material is provided with a film comprising an oil such as tung or linseed oil and a synthetic resin with which mineral particles of various sizes are bonded to each other and to the base.—A.P.-C.

**Constructional Material Suitable for Roofing.** Albert C. Fischer, assignor to The Philip Carey Manufacturing Co. U. S. pat. 2,065,439 (Dec. 22, 1936).—A material such as a paper or felt, is saturated with a bituminous saturant, such as a bitumen-kerosene mixture, containing a solvent, and is coated with a slow-drying tacky, bituminous composition, or treated with castor oil or the like.—A.P.-C.

**Process and Apparatus for Producing Variegated Roofing.** Benjamin S. Penley, assignor to The Barrett Co. U. S. pat. 2,068,761 (Jan. 26, 1937).—A number of sets of spaced wavy streams of granular material of contrasting color are simultaneously fed onto a continuously moving coated roofing web. The sets of streams are in different planes with the individual streams of one set staggered with respect to those of another set, and the aggregate width of the streams is such as to cover the entire width of the roofing web.—A.P.-C.

**Process and Apparatus for Surfacing Roofing.** John Robert, assignor to The Barrett Co. U. S. pat. 2,068,767 (Jan. 26, 1937).—A stream of granular material, preferably at least as wide as the web of coated roofing, is passed through a substantially vertical plane onto the web, the flow of the stream being intercepted along spaced points in its plane of flow by means of a number of spaced oscillating hollow members. Granules of a different color are fed through the hollow members or spouts on to the portions of the web, left uncovered by the main stream.—A.P.-C.

**Paper Pleating Machine.** Fred Schwartz, assignor to Fort Howard Paper Co. U.S. pat. 2,094,415 (Sept. 28, 1937).—The invention provides a machine longitudinally pleating paper (which preferably has been previously corrugated transversely) by the use of elastic belts succeeded by forming devices (suitably, pairs of upper and lower, mating, circumferentially grooved rolls) and pressure rolls to finally complete the pleats. (Cl. 154-30).—A.P.-C.

**Process of Producing Absorbent Paper.** Louis L. Larson and George L. Schwartz, assignors to The Celastic Corp. U.S. pat. 2,088,524 (July 27, 1937).—Chemical pulp is cooked from 30 mins. to 3 hrs. (preferably about 2 hrs.), at 160 deg. to 200 deg. C. (preferably 170 deg to 190 deg. C.) and at a consistency of 2.5 per cent to 4.5 per cent, with a 0.5 per cent to 7.0 per cent (preferably 2 per cent to 4 per cent) solution of sodium hydroxide or sodium carbonate. Paper produced from pulp treated in this way is pliable, porous, absorbent and has improved freedom from breaks. (Cl. 92-13).—A.P.-C.

**Safety Paper.** Clifford Paine and Jack A. Radley, assignors to Imperial Chemical Industries, Ltd. U.S. pat. 2,089,293 (Aug. 10, 1937).—Water-soluble fluorescent compounds which have a strong affinity for cellulose are incorporated into, or applied to the surface of, the paper. The free acid or water-soluble salts of 4,4'—dibenzoylaminostilbene—2,2'—disulphonic acid are particularly suitable. (Cl. 91-67.95).—A.P.-C.

**Surface Coated Abrasive Material.** Thos. M. Richmond, assignor to Modern Engineers, Inc. U.S. pat. 2,089,426 (Aug. 10, 1937).—In the manufacture of sand paper, the adhesive used consists of asbestos cement, sodium silicate and water as the principal ingredients, and comparatively much smaller quantities of zinc oxide, rosin and glycerin. (Cl. 51-280).—A.P.-C.

**Fibrous Sheeting and Process of Preparing the Same.** Joseph H. Gay and John A. Wilson. U.S. pat. 2,092,966 (Sept. 14, 1937).—A non-woven fibrous sheet having a smooth compacted surface is prepared by splitting it into a number of laminations. This is accomplished by moving the sheet relatively to a travelling splitting knife, e.g., of the endless belt type. (Cl. 92-68).—A.P.-C.

**Method of Producing Colored Roofing.** Jeremiah D. Giles. U.S. pat. 2,094,150 (Sept. 28, 1937).—A thermo-setting compound comprising a synthetic resin of the type adapted to be hardened with heat and a drying oil, is atomized on to impregnated and surfaced roofing while the latter is still hot. (Cl. 91-70).—A.P.-C.

**Composite Sheet Material for Use as a Leather**

**Substitute.** Dorman McBurney and Raymond E. Thomas, assignors to E. I. du Pont de Nemours & Co. U.S. pat. 2,094,613 (Oct. 5, 1937).—A suitable woven or unwoven fabric is given several coats of a cellulose derivative composition. After drying the coating there is applied one or more layers of a crepe tissue sheet which has previously been wetted with a suitable composition having a plasticizing action on the cellulose coating. A surface coating may finally be applied to partially waterproof the surface or to provide further decoration. (Cl. 154-2).—A.P.-C.

**Rubber Impregnated Fibrous Material.** Stephen B. Neiley, assignor to Dewey and Almy Chemical Co. U.S. pat. 2,089,925 (Aug. 10, 1937).—In the manufacture of artificial leather, paper is impregnated with latex containing a heat-dissociable coagulant (suitably, zinc-ammonium chloride, acetate or benzoate) and is heated to the requisite temperature to dissociate the coagulant and coagulate the latex. This prevents the latex from migrating to the surface of the sheet on drying, so that the rubber-impregnated sheet will bond well with a pyroxylin coating. (Cl. 91-68).—A.P.-C.

**Creping.** Edward H. Angier. U.S. pat. 2,079,273, (May 4, 1937).—Materials which shed water are associated with a crepable material such as a moist paper web. The assembled materials are creped and then separated. (Cl. 154-33).—A.P.-C.

**Laminated Material and Process of Making Same.** Alphonse Gams, Karl Frey and Theodor Sutter, assignors to Society of Chemical Industry in Basle. U.S. pat. 2,076,456 (April 6, 1937).—Sheet material is coated with a layer of permanently fusible non-hardening amine resin containing not more than substantially 1 molecule of formaldehyde per molecule of anhydroaminobenzylalcohol (or its homologues or polymers). Two or more coated sheets are united by heat and pressure. (Cl. 154-2).—A.P.-C.

**Paper.** Leroy C. Cates assignor to S. D. Warren Co. U.S. pat. 2,088,893 (Aug. 3, 1937).—A bright, well formed, opaque paper having an extremely smooth, highly finished, dense, closed up surface, suitable for varnishing is obtained by supercalendering book-grade paper between a hard and a soft roll and thoroughly moistening the side of the paper in contact with the hard roll and thoroughly moistening just before it comes into contact with this roll. The applied moisture is not allowed to distribute itself through the sheet but is confined as much as possible to the surface. (Cl. 92-68).—A.P.-C.

**Cushion Sheet for Stencils.** Wm. G. D. Orr, assignor to A. B. Dick Co. U.S. pat. 2,085,384 (June 29, 1937).—A porous resilient cushion-sheet carrying a small quantity of removable material of a color contrasting with that of the stencil sheet and of the backing is interposed between the stencil and backing sheets. (Cl. 41-3.5).—A.P.-C.

**Apparatus for Conditioning Paper.** Lydia B. Koch. U.S. pat. 2,090,131 (Aug. 17, 1937).—Paper is placed in communicating chambers which may be closed off from one another if desired, and air of controlled temperature and humidity is passed through. (Cl. 34-19).—A.P.-C.

**Paper Cartridge.** Hobson F. Miller. U.S. pat. 2,088,031 (July 27, 1937).—In preparing a paper roll for use in high speed printing machinery both ends of the roll are treated with a sealing material that is sufficiently fluid to impregnate the exposed edges of the paper and that can harden to form a moisture-resisting solid. A portion of the impregnated paper is removed from each end of the roll, so as to remove excess sealing material and projecting portions of the paper, thus forming a smooth, lint free surface without exposing portions of the paper that have not been impregnated with the sealing material. (Cl. 91-68).—A.P.-C.

**Plastic Composition and Articles and Method of Making the Same.** Alexander J. Auchterlanie. U.S. pat. 2,084,272 (June 15, 1937).—Flax or hemp hurds are subjected to an alkaline cooking to remove gummy substances and leave an amorphous mass of micelles of substantially pure alpha-cellulose. The latter is sheeted without beating or refining on a special non-agitating fourdrinier, and the resultant sheet is impregnated in a solution of any suitable plastic resinous material, and dried. (Cl. 92-3).—A.P.-C.

**Microbiological Control in the Manufacture of Paper Wraps and Containers for Foods.** J. R. Sanborn. Ind. Eng. Chem. 29: 949-951 (Aug., 1937).—Extreme sanitary care both in manufacture and handling are necessary to prevent gross contamination of paper containers and wrapping papers. Slime accumulations in paper mills can be controlled by the use of sterile process water and liberal use of chlorine disinfectants.—A.P.-C.

**Creped Cellulose Wadding.** Paper Patents Co. Brit. pat. 460,565 (Jan. 29, 1937).—In making the wadding, a web is formed, transferred while wet to the drying cylinder of the paper machine and treated with liquid, e.g., by spraying with a solution of ammonium sulphate, ammonium dihydrogen phosphate and borax in the properties of 80, 10 and 10, the web being dried and creped by a doctor. The solution may contain an insecticide, vermicide bactericide, etc., and the wet web may contain asphalt, gum, etc.—A.P.-C.

## Bird Machine Co. Joins TAPPI

The Bird Machine Company, South Walpole, Mass. has become a company member of the Technical Association of the Pulp and Paper Industry.

Although the original shop existed in the 1860's the company as it is known today dates back a quarter century when the Bird interests took over and reorganized the Wandell Manufacturing Company, builders of the Wandell outward-flow rotary screen, later known as the Walpole screen. This was a descendant of the first rotary paper screen invented by Christian Wandell of Reutlingen, Germany in 1860. Wandell also built a save-all from which the Bird save-all developed. The inward flow screen was later developed, giving greater capacity.

In the 20's the company became associated with the Vickery interests of England and supplied the Vickery felt conditioner and doctor to American paper mills. Shortly thereafter a collaboration with Anton J. Haug resulted in the development of the Bird pulp screen, Bird thickener and Bird stock washer. A valuable connection with the Erkens organization in Germany resulted in the Bird Centrifiner. The Bird self-cleaning shower pipe was produced by the company engineers.

The officers of the company are Phillips Dennet, president; F. K. Becker, vice president; and A. H. Anderson, secretary-treasurer. F. F. Frothingham is manager of the Chicago office.

# The Requirements of Paper for Food Packages*

By C. A. Southwick, Jr. [1]


## Abstract

*The quantity of paper used by the food industry for packaging can be increased by the development of new materials and paper structures with improved functional characteristics. All food packages must perform certain functions. The kind and degree of these functions is determined by the food product. The most important of these properties are grease resistance, moisture vapor proofness, organic vapor proofness, etc.*

*The proper evaluation of papers for food packages can be determined by laboratory testing. Such tests will determine the odor and functional property of the paper structure.*


The food industry is probably the second largest user of paper products and this use is exceeded only by the publication industry. Furthermore, this volume will increase as new processes or materials are developed which improve the functional properties of paper. Therefore, it is to to the advantage of the paper industry and the food manufacturers to cooperate in perfecting new paper types and determine proper usage. Cooperation is necessary also to set and maintain practical specifications on existing materials. Such results are achieved only when the paper chemist has a realization of the requirements of the food industry.

## Purpose of the Package

The manufacturer of packaged foods is primarily interested in marketing a product which is nutritious, palatable, convenient, and of wide acceptance. His interest in the package is that it should be a convenient and attractive vehicle to distribute products. The package must deliver the product in as near a factory-made condition as possible and at the minimum cost.

The food manufacturer wants the package to deliver to the consumer a product in a uniform and acceptable condition. This is necessary because of certain uncontrollable factors such as length and conditions of shelf storage, etc. Even to accomplish this practical result the package must have functional properties depending in degree and type on the food product and the cost limitations.

## Function of Food Containers

The requirements for all food packages, simple or complex, can be summarized as follows:

*Physical protection of the contents*: This requirement includes prevention of abrasion, loss of contents, and contamination, either by handling or usual shelf hazards. It is the most obvious function of any container.

*Protection against change of state:* Such protection is necessary to many foods because of their composition or method of merchandising. It includes inhibiting migration of moisture vapor, volatile flavors, grease, fat, liquid water, etc. This requirement might be called an invisible property, as it can only be evaluated by test or experience. Incidentally, it should be mentioned here that the trend is in the direction of reducing the work of food preparation in the home. This requires a higher degree of processing in the factory and gives a more complex or unstable product to package. Therefore, packages for such food will necessarily be required to have high protective qualities.

*Attractiveness or eye appeal*: This package requirement is one which is judged by the consumer at the point of purchase and again in the home. It is necessary that attractiveness be combined with durability to withstand the abrasion of handling and to resist change by light and grime on the shelf.

*Convenience*: This is a package function which carries weight with the user of the product. It is unwise to merchandise food in a container which is difficult or dangerous to open or handle. When this requirement is neglected the possibility of resale is greatly reduced. For many foods it is also unwise to use a container which carries more than a convenient or easily used portion.

## Requirements of Food Products

Since packaged foods today include such a variety of products, it is possible only to generalize the problems presented. It is helpful to analyze the components or properties of all food products as a basis for the selection of suitable types of packaging materials. Many foods will come under several groups, and probably very few will come under a single group. The following classification lists the components or properties of foods which will determine the final package.

Grease or fat content.
Aromatic or flavor ingredients.
Sensitivity to moisture gain or loss.
Storage temperature requirements.

## Foods Containing Fats

Foods of high fat content are given special handling in shipment and storage. For example; meat products, chocolate, butter, lard, etc. Low temperature handling is very often necessary because the melting point of the contained fat is so low that under ordinary temperatures the package materials would be limited to tin, glass, etc. Fatty materials also require careful consideration because they are extremely absorptive of foreign odors. Such odors can arise from materials used in the package construction as well as from outside sources transmitted through the package wall to the product. In many products the fat content is so low or the fat is so colloidally bound that no consideration need be given to any type of greaseproofness. However,

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many foods contain fat in sufficient quantity to make greaseproofing to some degree necessary.

It is possible to make paper which inhibits grease penetration without resort to subsequent coating or treatment. Such paper structures result from one of several collodial cellulose reactions, including hydration, parchmentization, enfibrillation, control of interfacial contact angle, etc. Besides glassine, mechanical greaseproof, and parchment, certain treated and lacquered papers possess greaseproofness of a high order and they are very useful in packaging. The packaging of foods which contain a high fat content and which are to be given ordinary handling is a very difficult problem. It is necessary to select a paper structure which in itself does not transmit fat, and then to form a container so that the fat cannot creep out at seams or closure. A failure of any one of the package components becomes obvious at once by the staining of the outside surface.

Due to the great sensitivity of taste and smell, foods are easily contaminated by foreign odors. Foods must therefore be protected against odors from the package itself and from absorbing outside odors. Furthermore, rancidity of fat can be accelerated by contact with residue of the paper digestion process. Therefore, foods containing fats require a purified, odor-free paper structure.

### Moisture Migration

For foods which are sensitive to changes in moisture content, either by absorbing moisture from the air or losing their moisture content, some degree of moisture vapor proofness must be incorporated in the package. The determining factors, in the degree of moisture proofness required, are (1) sensitivity of the product to moisture change, (2) conditions of storage, and (3) the cost. In many cases this problem is complicated by the fact that food products contain aromatic or flavoring materials which must be retained. For these special types of food products, such as some of the gelatine dessert powders, the package must not only be moistureproof but must also retard transmission of organic vapors. For products which are sensitive to moisture alone, there are a great many available types of structures of varying degrees of moisture vapor proofness. The degree of moisture vapor proofness required can very simply be determined by a laboratory test in storage cabinets operating at normal or slightly elevated temperatures and abnormal humidities.

### Organic Vapor Retention

Many food products which contain volatile fractions may not require moisture vapor proofness but simply the inclusion of papers which will retard the transmission of volatile portions. These volatile fractions are usually organic esters and there is no relation between moisture vapor proofness and the resistance to the transmission of organic vapors. This property in many places is closely related to greaseproofness, since glassine, parchment, and certain lacquer coatings possess the ability to stop the migration of the substances.

### Frozen Food Requirements

There is an entirely new class of food products which presents radically different problems than any above considered. These are the quick frozen types which include fruits, vegetables, fish products, poultry, and meats. Paper for such products requires the usual freedom of odors, plus high moisture-proofness and flexibility at low temperatures. The temperature of storage for these products is usually about 0 deg. F. Many paper structures which are satisfactory for use at ordinary temperatures fail at these low temperatures because of the lack of flexibility. For frozen products, which at normal temperatures contain free water, the package structure must also be water resistant so that the consumer still has an attractive package when the product has been thawed for use.

### Procedure for Testing

It is very necessary that a careful study be made before any recommendations are decided upon for a new food product or for revising the packing of a standard item. The paper structure alone can be tested for various functional characteristics by methods which are fairly well standardized. Sample packages, preferably machine-made, should then be made up with the old package as a control and placed under accelerated storage conditions. For example; if a product is sensitive to moisture, sample packages can be placed under test in a storage cabinet under controlled temperature and humidity. Periodic weighings will determine the moisture gain of the product and an examination after various intervals will show the degree of caking, flavor loss, or contamination by odors from the package.

### Detection of Paper Odors

At these examination periods sample packages should be withdrawn, examined carefully and then the contents made up as directed, and tasted. If a procedure of this kind is adhered to and performed intelligently, there is much less liklihood of future difficulties from the viewpoint of fitness of the paper for the packaging of the product. It is also advisable to place the various materials which are to comprise the package in a closed glass jar to determine if they are possible sources of noticeable odors. In this test a word of caution is necessary; it is a well-known fact that the sensitivity of olfactory nerves are dulled by long exposure to a given type of odor, although the sensitivity to other odors is undiminished. This means that in a paper mill laboratory which is full of paper samples, it would be impossible to detect the odors from a particular sample. However, such odors would be very obvious to anyone in a food laboratory. It is believed that this point is well worth special consideration. Frequently it is impossible to understand why suppliers submit paper samples to food packers which are obviously unfit for the intended purpose.

It has been proposed that aromatic materials be added to paper to overcome any traces of unpleasant odors so that the finished result would be compatible with food products. In our opinion, this suggestion should not be considered as the solution for the odor problem because, first, there is no assurance that the aromatic materials selected will be compatible with a wide range of food products, and second, it breeds a careless attitude toward prepairing a paper structure with the minimum of odor. This idea has been tried out particularly with printed labels to overcome odors arising from the ink. In this case vanillin was added to the ink but the finished labels had far from an attractive smell.

Paper chemists may question why such thorough testing should be done by the paper manufacturer. It is believed that the laboratory of the paper manufacturer should make enough of the indicated tests so that a proper and intelligent selection be sent to the food packing customer. In all probability this food manufacturer will then make more extensive tests for both functional and operating characteristics.

The food manufacturer is often condemned for being extremely critical in many cases, but it must be borne in mind that the consuming public is not adventurous enough to use a product in doubtful condition or with traces of a peculiar odor. In many cases the consumer may be wrong in rejecting a package on such grounds, yet the tendency is very real and it reflects upon the manufacturer. Therefore, he must be sure that there is not the slightest grounds for consumer suspicion or rejection. Paper, which is to be used for foods, must, like Caesar's wife, be beyond suspicion. This can only be accomplished by critical testing of the final paper structure and its component parts.

# How to Control the Continuous Recausticizing System*

By C. L. Knowles [1]


## Abstract

*It is the purpose of this paper to suggest practical ways and means for the operator of a continous recausticizing plant to control the entire system and maintain it at maximum efficiency day in and day out. The suggestions are based on practical experience at over a dozen kraft mills with an aggregate producing capacity of 3500 tons of pulp per day.*

*Control of continuous recausticizing systems cannot be done on a hit or miss basis. This means proper metering equipment, proper feeders, correct temperature control and a systematic routine for the taking of samples and the carrying out of the analytical work.*

*On the other hand, most continuous recausticizing systems are run by operators who have only the faintest conceptions of the relation of chemistry to the physical and mechanical workings of the plant. This means that the control apparatus must be simple, the sampling routine not too arduous and the analytical work elementary so that it can be done accurately at a bench in the recausticizing room by a man possessing no more than a grammar school education.*

*In this paper an attempt has been made to strike a happy medium between technical exactness on the one hand, and the limitations of the average operator on the other. In the final analysis the most accurate system of control is worthless if the man in charge of the plant is incapable of understanding it, or refuses to use it to guide him in his work.*

*The paper is divided roughly into three parts—a discussion of control apparatus, suggestions on sampling and some notes on simple analytical procedures, with graphs to facilitate computations.*


## Differences Between Reactions in Batch and Continuous Systems

It is doubtless safe to say that the liquors from over half the kraft pulp manufactured in the country today are recausticized in continuous recausticizing systems. Of the installations made in the Southeast during the past eighteen months, all but one are of this type. Apparently all pulp manufacturers recognize the value of causticizing continuously and appreciate the uniformity of the liquors produced, the increased recovery, and the lower operating costs.

It should be realized that there is a fundamental difference between the reactions in a continuous and a batch plant. In a continuous plant, producing 100 tons of kraft pulp per day for instance, 44 pounds of lime react with say 33 gallons of green liquor each minute in the slaker and this reaction continues in the agitator in a more or less fully reacted slurry, that is, one in which the reaction is pretty well completed. Any heat generated is toned down by the bulk of the slurry and this continues for 1,440 minutes of each day. The same amount of heat is generated but is more uniformly distributed.

In a batch plant, quite the contrary is true. A considerable tonnage of new lime is discharged almost instantaneously into a large volume of green liquor. The reaction starts vigorously and much heat is generated immediately, but as the reaction proceeds, external heat is normally required to complete it.

Because of the above, a continuous operation produces a precipitate of uniformly sized particles, while a batch unit yields either fine or coarse material, depending upon the progress of the reaction. This, of course, is of prime importance since settling of the slurry to obtain clear liquors is a subsequent operation. It is for this reason that continuous plants give clearer liquors than batch plants.

With the continuous system a different type of operator and different type of control are necessary if the human element is to be entirely eliminated. Up-sets and shut-downs will, of course, occur and a well laid out plant provides several points in the flowsheet where liquors, solids, or sludges can accumulate for a while, if one portion of the plant is temporarily out of commission.

## Control Apparatus

If a small quantity of burned lime has to meet the proper quantity of clarified green liquor at any particular time, it is of great importance not only to maintain a uniform flow of green liquor by the

* Presented at the Annual Meeting of the Technical Association of the Pulp and Paper Industry, Waldorf-Astoria Hotel, New York, N. Y., Feb. 21-24, 1938.

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installation of suitable meters, but also to carry along at all times analyses of the liquors, lime, etc. This need not be a burden, for, once in balance, the whole system operates almost automatically. However, a continuous plant, always out of balance or subject to frequent break-downs, is no better economically than a batch plant.

Fig. 1. shows a flowsheet of a continuous plant and the points where meters and recording devices should be installed, as well as the points where samples should be taken for plant or laboratory analyses. In the latter part of this paper there are indicated methods of analysis. While it is realized that the personal equation enters into the type of analysis favored, those indicated have been found satisfactory in keeping a number of continuous causticizing plants in efficient operation. Where several types of analyses are possible, the simplest has been chosen —that is, the one that can be carried out most quickly and with the least technical knowledge.

### Temperature Control

A knowledge of temperature at the following stations is essential for the reasons given:

(a) *Causticizing*—Correct slurry temperature assures complete reaction in least possible time, with minimum agitation and, as a result, a fast settling precipitate.

(b) *Thickening*—The higher the temperature, the less area required for any given flow, and the clearer the cooking liquors to the digesters.

(c) *Slaking*—Larger particles of calcium hydrate and subsequently coarser calcium carbonate particles are obtained if slaking is carried out around 200 deg. F.

It is for this reason that all units, except slakers, are insulated. The viscosity of water decreases raddidly with increase in temperature; and it is also obvious that any B.t.u. in the cooking liquor to the digester offer direct savings.

A tubular heater should be installed on the green liquor line leading to the slaker, classifier and causticizing agitators, preferably with a control to shut off the steam when the desired temperature is reached. A temperataure recorder should be placed on this line and in the first of the three causticizers, to assure hot liquors to the first thickening step. A temperature recorder is recommended on the hot wash water coming into the system, before the point where this hot wash water is split between the dregs washer, the lime mud filter and the second white liquor thickener.

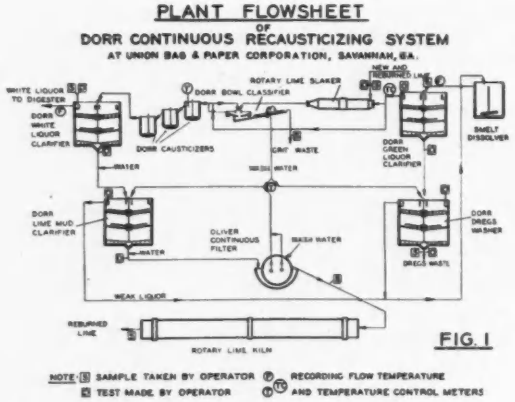



FIG. 1

NOTE: S SAMPLE TAKEN BY OPERATOR T RECORDING FLOW TEMPERATURE
C TEST MADE BY OPERATOR TC AND TEMPERATURE CONTROL METERS

In all of these cases ordinary thermometers might tell the story if they were watched continuously. Recording thermometers on a panel in the control room are much to be preferred because, in the first place they tell the story at a glance, and secondly, the records made by them, covering any period when results were not up to standard, may be studied later.

The injection of live steam into the system will of course maintain the desired temperature. However, with these carefully balanced, continuous systems, the basic idea is to add all of the water at the tail end of the system, for washing the sludges counter-currently, which precludes the addition of water or steam at any earlier point in the system. If direct steam were used, it would condense and the resulting dilution would reduce the overall washing efficiency of the plant in direct ratio to the amount of water introduced in this manner.

### Feeders

It is evident that a supply of new lime identical in CaO content cannot always be obtained; nor can any lime reburning device yield consistently the same results. For this reason two separate lime bins are provided—one for new lime and one for reburned lime—each providing several hours storage capacity. Two accurate feeders, preferably of the chain type with variable speed drives, are provided for delivering two types of lime at the proper rate to the conveyor which delivers this lime to the slaker. Two storage bins of this type, with two accurate feeders, give great flexibility and make it possible to mix the new and reburned limes in the proper ratios, regardless of their CaO content, so that the lime slaker may receive constantly a reasonably uniform tonnage of actual CaO.

Feeding of salt cake to the system need not be discussed here, because normally this salt cake is added to the recovery unit, which is not an integral part of the recausticizing system.

### Flow Meters

If 100 cu. ft. of cooking liquor are to be produced per ton of pulp, and if all the water is to be added at a point where it will do the most good, a flow meter is surely needed on the hot water entering the system. Actually more than 100 cu. ft. of water can be added, because the lime slaking reaction takes up water and because the lime reburning unit receives a filter cake containing 40 to 45 per cent water, all of which is evaporated. A well-operated plant will use about 120 cu. ft. of water to produce 100 cu. ft. of cooking liquor.

It has always appeared desirable to provide intermediate storage for the raw green liquor, and to allow the clarified green liquor to flow by gravity to the slaker, classifier and causticizers, at its rate of production. This is done because at present the dissolution of the smelt from a modern recovery unit is not completely continuous. Consequently, the flow meter, preferably a recording one, should be placed on the line carrying the raw green liquor to the green liquor clarifier. Obviously, it is unnecessary to provide additional flow meters on the three pipe lines which later split this flow among the three stations referred to above, because the operator must use this total liquor. Observation of the slaker controls the quantitv here and the remainder is simply split between the classifier and causticizers.

The flow is split by valves on the individual pipe lines. First, there is sent to the slaker the minimum amount of liquor that can be handled in it. Too dense a milk of lime will not flow through the slaker; while, on the other hand, too thin a milk of lime will interfere with the production, subsequently, of a calcium carbonate precipitate having rapid settling and filtering characteristics. Consequently, the operator must strike a balance between the chemical and mechanical considerations in the lime slaking situation.

The balance of the liquor is divided between the classifier and the causticizers. The classifier should operate so as to overflow grit-free milk of lime at a definite dilution so that coarse solids and grits may be effectively removed and discarded. After the correct dilution has been set up in the classifier, whatever green liquor still remains is sent to the causticizers.

It is true that all of the above mentioned control devices do add to the initial cost of the continuous recausticizing system, and it is equally true that this matter of control can easily be overdone. The devices mentioned above, however, are believed to constitute about the minimum requirements, and their use should assure smooth operation with a minimum labor cost. On further analysis it will be seen that the increase in cost is really insignificant and well justified since every operator knows that it is far easier to keep a continous plant in operation than to rebalance it after it has gone astray.

### Sampling and Meter Reading Routine

Certain samples must be taken at regular intervals and analyzed in order to check the efficiency of the entire recausticizing system and to produce a white liquor for the digesters, of the desired specification. TAPPI has studied this matter before and some members of it may not agree with the following recommendations. These tests are believed to be sufficient in most instances, some being made by the caustic operator and some by the staff of the main laboratory.

LIME

*New*—Sample each carload between elevator and the storage bin. Analyze for CaO in the plant laboratory.

*Reburned*—Take a pint sample every hour and analyze the composited sample for CaO each shift in the plant laboratory.

*Combined Limes*—Take a sample hourly from the feed to the slaker and analyze the composited sample for CaO each shift, in the plant laboratory.

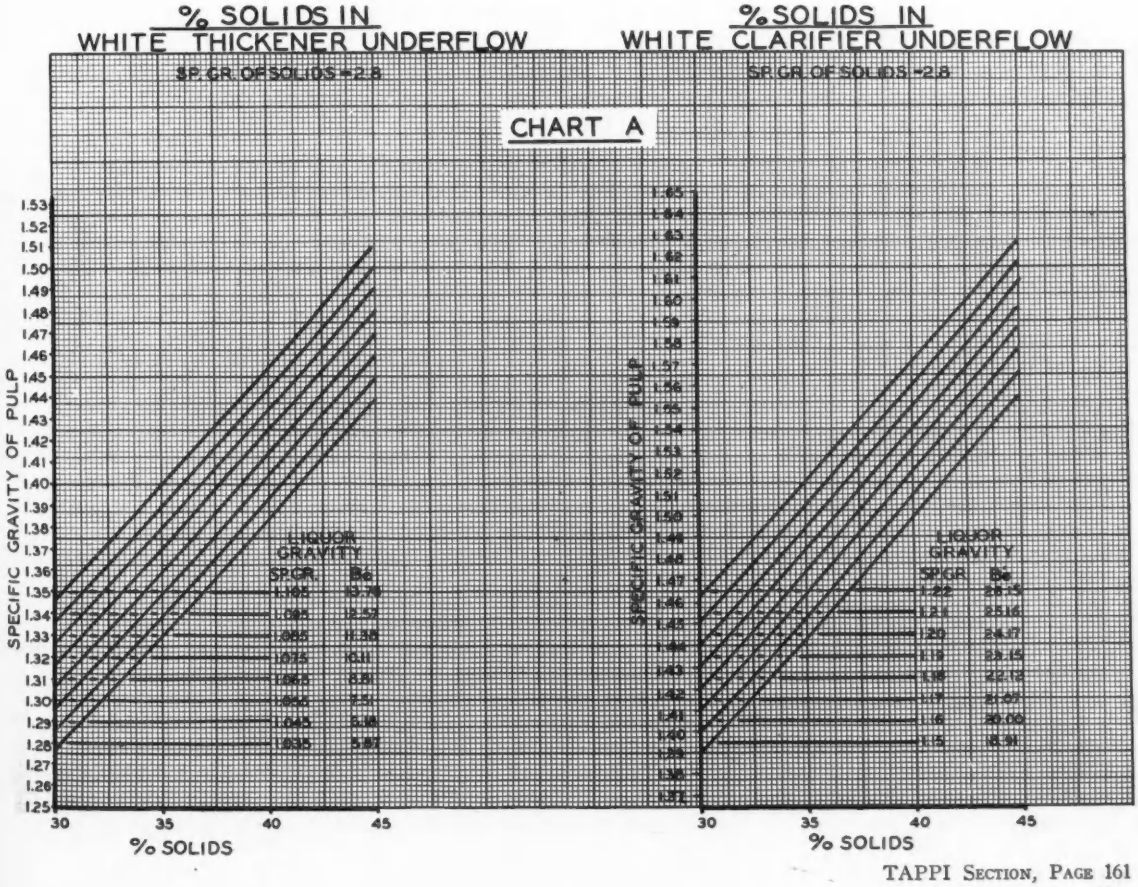
CLASSIFIER GRITS

Take one sample each shift and test in the plant laboratory for $Na_2O$ and CaO.

WHITE LIQUOR

Take hourly samples to be tested by the operator in the plant for activity.

Send hourly composited samples to the main labor-




TAPPI Section, Page 161

atory each shift for complete chemical analysis—activity, causticity, sulfidity, and total soda.

THICKENER UNDERFLOWS

Weigh timed samples hourly for operator to use in calculating dilution.

FILTER CAKE

Take hourly samples to be composited each shift and analyze in the plant laboratory for $Na_2O$ and CaO. and moisture.

GREEN LIQUOR

Take hourly samples to be composited and sent each shift to the main laboratory to be tested for total soda and percent insoluble solids.

GREEN LIQUOR CLARIFIER UNDERFLOW

Weigh timed samples hourly for operator to use to calculate dilution.

GREEN LIQUOR DREGS

Same procedure as above.

Hourly samples composited by shifts and sent to laboratory for $Na_2O$ analysis.

In addition to these tests and samples, if the system is to be in balance always, the operator must (1) note the quantity of white liquor produced, (2) read the meter for fresh water to the green liquor and white liquor systems, (3) watch the weak liquor feed volume as well as the volume of the green liquor consumed, and check the weight of lime entering the system. This lime sample is obtained hourly for chemical analysis by opening the trap on the bottom of the screw conveyor for one minute. If this material is weighed it gives a good approximation of the lime consumption for any given period of time. These, with the temperature records, constitute the duties of the control man.

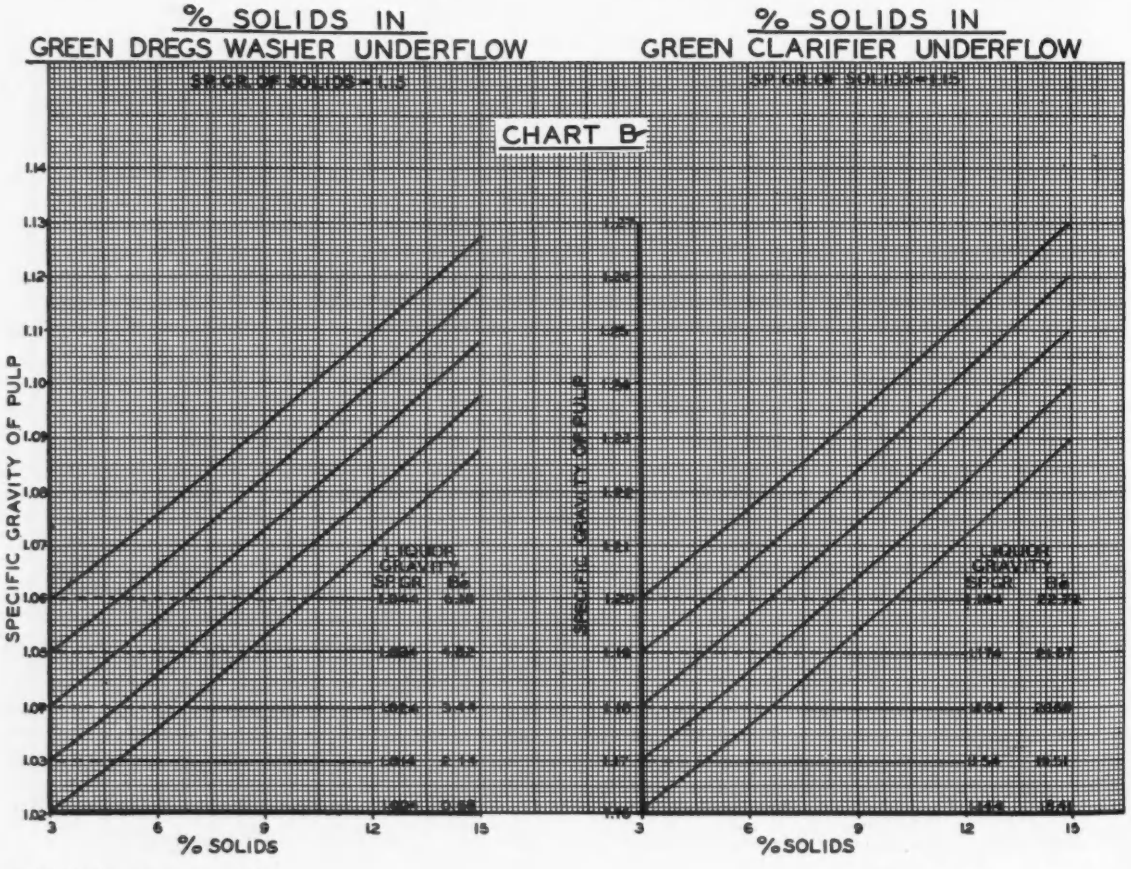
Each thickener should make as clean a separation as possible between the liquor and solids, otherwise soluble soda will progress through the system and into the lime reburning kiln where a considerable portion of it is sublimed up the stack. Moreover, the less soda to the filter, the greater its capacity and the higher its efficiency. In kraft mill work, the final thickener underflow should carry 40 to 45 per cent insoluble solids if the slaking has been carried out correctly, so as to give a rapid settling precipitate.

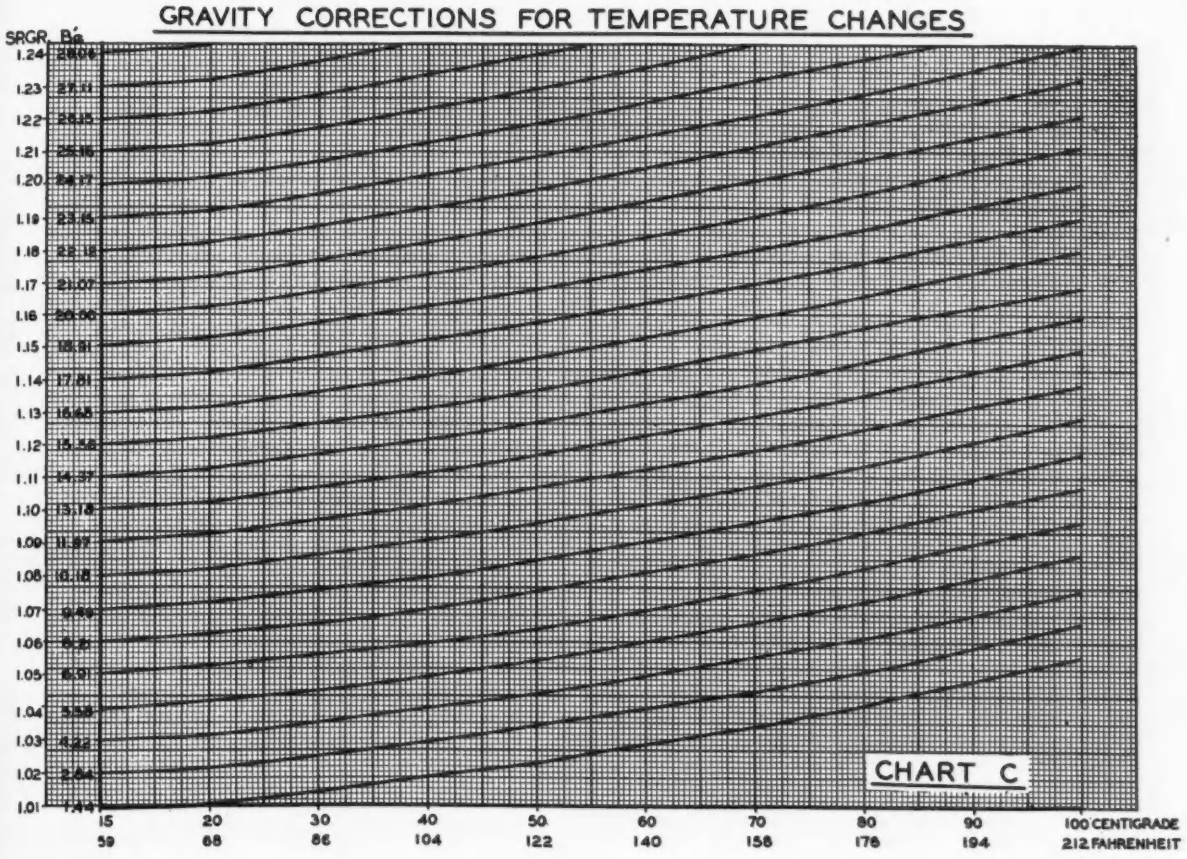
The above may sound formidable to the novice with a continuous system. It should be remembered, however, that the caustic room operator has no lime to weigh, no decantations to make, and that one half his time will suffice to take these samples, make the tests and note the meter readings. In fact, the operator of a continuous system is the control man. The laboratory tests can be made in one half day by an experienced chemist, but even if the full time of one man should be required, the cost is well repaid by better operation.

Recording devices are far more satisfactory than readings made by the operator and tabulated in a note book. They avoid any danger of failure to get hourly readings. Recording sheets, of course, present the true picture the next morning.

### Physical and Chemical Analyses

Several years ago, TAPPI developed a system of






standard terms and decided to call "causticity" the NaOH divided by the total soda. In the suggested analyses following, the calculations to give this are shown, but the word "causticity" is used in its older sense, i.e. NaOH as $Na_2O$ divided by NaOH plus $Na_2CO_3$ as $Na_2O$.

Considering the recovery furnace as a separate operation from the causticizing room, and assuming sulphidity tests daily by the laboratory, it is suggested that the caustic room operator use the activity test to control his operation. This saves time and simplifies control. If the activity is falling or rising, the operator can at once increase or decrease the lime feed as the case requires. The sample from the first causticizer is allowed to settle before pipetting out a sample and if it settles slowly, it is very probable that too great an excess of lime is entering the system. If the slaker discharge is too dense to flow readily, obviously more green liquor should go to the slaker and less to the causticizers. These two rules of thumb tests, coupled with the activity test, completely control the feed of lime to the slaker, and to the whole system. The operator will readily find a certain ratio between causticity and activity for his own plant.

From here on, the control is concerned with obtaining the lowest possible soda losses and all other tests are made with this only in view. To determine the percent insoluble solids in the thickener underflows, it is only necessary to weigh a known volume of the slurry and by means of conversion tables, or a chart, pick out the percentage insoluble at once.

Chart *A* has been prepared for the two white liquor thickeners and chart *B* for the green liquor clarifier and dregs washer. Since the Baumé readings will doubtless be taken hot, chart *C* will correct these to standard temperatures.

New operators may be interested in the following explanation of the basis of these charts. If the specific gravity of the insoluble solids is known and the specific gravity of the underflow from a thickener has been determined by weighing a litre of the slurry, the per cent solids can be readily calculated as follows:

Sp. Gr. solids = 2.8
1000 cc. pulp weighs 1420 g.
Then sp. gr. pulp = 1.42. And if the gravity of the liquor corrected for temperature is 1.17 then

$$1.42 = \frac{100}{\frac{X}{2.8} + \frac{100 - X}{1.17}}$$

Solving, X = 30.5 = per cent insoluble solids

An overloaded thickener gives trouble. If the time required to fill the container in the above test be noted, this gives a simple check on the tonnage of solids removed per interval of time from the thickener, and if this equals the tonnage fed to it, no thickener will become overloaded. This check on thickener operation is earnestly recommended.

DETERMINATION OF FREE LIME IN NEW AND REBURNED LIME:

Dissolve exactly 100 g. lime in about 600 cc. $H_2O$. Boil 15 minutes, breaking up lumps. When smooth

milk results, dilute to exactly 1 liter. Stir mechanically and pipette out 2 samples—A and B

A = 10 cc. sample for CaO determination and
B = 50 cc. sample for $Na_2O$ determination.

A. *Free Lime Present*

To a 10 cc sample,—add 25 cc. $BaCl_2$ (100 g. per liter) Titrate with 0.516 N HCl, using phenacetoline indicator, yellow to red end point.

Calculations

$$\frac{\text{A. cc.} \times 0.0144 \times 100}{1} = \text{per cent CaO (+NaOH if present)}$$

Other methods which may be used are: 1. sugar method; 2. iodine method and 3. causticizing method.

However, the above method seems simple and accurate.

B. *Soda Present*

Dilute a 50-cc sample to 100 cc. Gas with $CO_2$ for 20 minutes to convert $Ca(OH)_2 \rightleftarrows CaCO_3$. Boil 15 minutes to remove dissolved $CO_2$. Filter and wash with boiling water. Titrate filtrate and washings with 0.516 N HCl using methyl orange, or brom cresol green end point = B cc = total $Na_2O$.

Calculations

$$\frac{\text{B. cc.} \times 0.016 \times 100}{5} = \text{per cent } Na_2O$$

If NaOH be present, as in reburned lime, then

$$\frac{\text{A. cc.} - \text{B. cc.}/5 \times 0.0144 \times 100}{1} = \text{per cent CaO}$$

If a source of $CO_2$ be not handy, the following alternate is given: Dilute a 50 cc sample to 100 cc [$(NH_4)_2\ CO_3$ added in excess.] Evaporate to dryness in porcelain dish. Heat till all $NH_3$ fumes are driven off. Dissolve in 50 cc boiling water. Filter and wash with boiling water. Titrate filtrate and washings as above. Calculate for per cent $Na_2O$ as above.

Free Lime and Soda in Grit:

A. *Soda Present*

Take 10 gms. wet mud. Add 150 cc hot $H_2O$. Gas 20 minutes with $CO_2$. Boil 15 minutes. Filter and wash with boiling water. Titrate filtrate and washings with 0.516 N HCl, to methyl orange, or brom cresol green end point, noting A cc = total $Na_2O$.

Calculations

Soda

$$\frac{\text{A. cc.} \times 0.016 \times 100}{10} = \text{per cent } Na_2O$$

$$\text{Per cent } Na_2O \times \frac{142}{62} = \text{per cent } Na_2SO_4$$

*Alternate*: $(NH_4)_2\ CO_3$ may be used to precipitate $CaCO_3$ as noted in previous case.

B. *Free Lime Present*

Grind 10 g. mud ground to 100 mesh. Add 150 cc $H_2O$. Add 20 cc. $BaCl_2$ (100 g. per liter). Titrate with 0.516 N HCl to phenolphthalein end point.

B. cc. = $Ca(OH)_2$ + NaOH + ½ $Na_2S$ as CaO.

Calculations

(B. cc. — (A. cc. — % sulphidity/2 · A. cc) × 0.0144 × 100) · 1/10) = per cent CaO

Free Lime and Soda In Lime Mud

It is assumed that no $Na_2CO_3$ exists in the lime mud samples since the great excess of $Ca(OH)_2$ to any possible carbonate of soda coupled with the extreme dilutions present will effect almost a 100 per cent conversion to NaOH. Hence what little $Na_2CO_3$ is present may be neglected.

A. *Soda Present*

Take 10 gms. of dry cake or equivalent of sludge. Add 150 cc Hot $H_2O$. Gas 20 minutes with $CO_2$. Boil 15 minutes. Filter and wash with boiling water. Titrate filtrate and washings with 0.516 N HCl to methyl orange, or brom cresol green end point. A. cc = Total $Na_2O$.

Calculations

$$\frac{\text{A. cc.} \times 0.016 \times 100}{10} = \text{per cent } Na_2O$$

Alternate: $(NH_4)_2\ CO_3$ may be used instead of $CO_2$ as in lime determination as noted before.

B. *Free Lime Present*

Take 5-gm. sample of dry cake or equivalent in sludge. Add 20 cc $BaCl_2$ (100 g. per liter). Titrate with 0.516 N HCl to phenolphthalein end point B cc = Ca $(OH)_2$ + NaOH + ½ $Na_2S$ as CaO.

Calculations

(B. cc. — (A. cc. — % sulphidity/2·A. cc.) · ½ × 0.0144× 100)·1/5 = per cent CaO.

Causticity and Activity Tests

By using acid 0.516 N the cc readings per 1 cc of sample may be directly doubled and, after pointing off 1 place, be used as pounds $Na_2O$ per cu. ft. of liquor.

A. To 5 cc of white liquor add 100 cc $H_2O$. Add 10 cc $Zn.Cl_2$ (200 g. per liter). Titrate with 0.516 N HCl to methyl orange or brom cresol green end point (A. cc).

A. cc. × 0.2 = pounds $Na_2CO_3$ pounds + NaOH as pounds $Na_2O$/ft.³

B. To 5 cc white liquor add 100 cc $H_2O$. Titrate with 0.516 N HCl to methyl orange or brom cresol green end point (B. cc).

B. cc. × 0.2 = pounds $Na_2CO_3$ + pounds NaOH + pounds $Na_2S$ as pounds $Na_2O$ per cu. ft.

C. Put 25 cc white liquor into a 250 cc flask. Add 25 cc $BaCl_2$ (100 g. per liter). Fill to mark, shake, allow to settle. Titrate 50 cc clear liquor with 0.516 N HCl to methyl orange or brom cresol green end point (C. cc). C.cc x 0.2 = pounds NaOH — pounds $Na_2S$ as pounds $Na_2O$ per cu. ft.

Let: X = B pounds per cu. ft. — C pounds per cu. ft. = pounds $Na_2CO_3$ as pounds $Na_2O$ per cu. ft.
Y = B pounds per cu. ft. — A pounds per cu. ft. = pounds $Na_2S$ as pounds $Na_2O$ per cu. ft.
Z = B pounds per cu. ft. — pounds $Na_2S$ as pounds $Na_2O$ per cu. ft. (= Y) + pounds $Na_2CO_3$ as pounds $Na_2O$ per cu. ft. (= X) = NaOH as pounds $Na_2O$ per cu. ft.

Then:

$$\frac{Z}{\text{B lb. per cu. ft.}} \times 100 = \text{Causticity by TAPPI}$$

$$\frac{Z + Y}{\text{B lb. per cu. ft.}} \times 100 = \text{Activity by TAPPI and Dorr}$$

$$\frac{Z}{Z + X} \times 100 = \text{Causticity by Dorr}$$

$$\frac{Y}{\text{B lb. per cu. ft.}} \times 100 = \text{Sulphidity by TAPPI and Dorr}$$

It is hoped that this discussion will make it simpler for operators to keep the continuous system in balanced operation, thus eliminating costly shutdowns and the production of unsuitable cooking liquors. Obviously a controlled operation consumes less lime, loses less soda and requires less operating attention.

The plant chemist can readily, from the above tests and readings, calculate at any time the overall efficiency, lime consumption, soda losses, etc., and arrive at a balance somewhat similar to that prepared by A.W.O. Rodowski and the writer for the TAPPI Savannah Meeting. (*Paper Trade. J.* 105, no. 18:120-122—(Oct. 28, 1937).

# Imports of Paper and Paper Stock

**Giving Manifests of New York, Boston, Philadelphia and Other Ports, of Newsprint, Wrapping, Writing, Coated, Blotting, Tissue, Strawboard, Wallboard, Cigarette Papers, Sulphite, Kraft and Ground Wood Pulp.**

## NEW YORK IMPORTS

WEEK ENDING FEBRUARY 26, 1938

SUMMARY

| | |
|---|---|
| Cigarette paper | 1,432 cs. |
| Wall paper | 16 bls., 10 cs. |
| Paper hangings | 3 bls., 1 cs. |
| Newsprint | 2,145 rolls |
| Printing paper | 35 cs. |
| Wrapping paper | 30 rolls |
| Drawing paper | 2 cs. |
| Filter paper | 4 cs. |
| Photo paper | 10 cs. |
| Marble paper | 1 cs. |
| Decalcomanias | 13 cs. |
| Transfer pictures | 3 cs. |
| Tissue paper | 28 cs. |
| Tracing cloth | 30 cs. |
| Colored paper | 1 cs. |
| Sheathing paper | 45 rolls |
| Paper board | 6 cs. |
| Miscellaneous paper | 29 cs. |

### CIGARETTE PAPER

Champagne Paper Corp., *Vincent,* Havre, 302 cs.
Champagne Paper Corp., *Champlain,* Havre, 990 cs.
De Mauduit Paper Corp., *Champlain,* Havre, 2 cs.
American Tobacco Co., *Schodack,* Bordeaux, 238 cs.

### WALL PAPER

American Express Co., *Queen Mary,* Southampton, 16 bls.
Titan Shipping Co., *Bergensfjord,* Hagastrom, 10 cs.

### PAPER HANGINGS

W.H.S. Lloyd & Co., *American Trader,* London, 3 bls, 1 cs.

### NEWSPRINT

N. Y. Evening Journal, *Kolsnaren,* Helsingfors, 322 rolls.
Lunham & Reeve, Inc., *Kolsnaren,* Helsingfors, 136 rolls.
N. Y. Evening Journal, *Kolsnaren,* Norrkoping, 1678 rolls.
———, *Bergensfjord,* Skien, 9 rolls.

### PRINTING PAPER

L. A. Consmiller, *Europa,* Bremen, 35 cs.

### WRAPPING PAPER

———, *Kolsnaren,* Norrkoping, 30 rolls.

### DRAWING PAPER

E. Dietzgen & Co., *Andania,* Liverpool, 1 cs.
H. Reeve Angel & Co. Inc., *Andania,* Liverpool, 1 cs.

### FILTER PAPER

H. Reeve Angel & Co. Inc., *Andania,* Liverpool, 4 cs.

### PHOTO PAPER

Eastman Kodak Co., *American Trader,* London, 1 cs.
J. J. Gavin Co., *Queen Mary,* Southampton, 7 cs. (unsensitized).
Heemsoth Kerner Corp., *Europa,* Bremen, 2 cs. (sensitized).

### MARBLE PAPER

Tamm & Co., *Konigstein,* Antwerp, 1 cs.

### DECALCOMANIAS

L. A. Consmiller, *Europa,* Bremen, 13 cs.

### TRANSFER PICTURES

Rohner Gehrig & Co., *Europa,* Bremen, 3 cs.

### TISSUE PAPER

M. Snedeker Corp., *American Trader,* London, 2 cs.
———, *Kosei Maru,* Kobe, 6 cs.
Remington Rand, Inc., *Kosei Maru,* Kobe, 20 cs.

### TRACING CLOTH

C. Bruning Co. Inc., *Europa,* Bremen, 30 cs.

### COLORED PAPER

Atlantic F'd'g. Co., *Europa,* Bremen, 1 cs.

### SHEATHING PAPER

———, *Hokuroku Maru,* Yokohama, 45 rolls, (sized).

### PAPER BOARD

J. P. Heffernan Paper Co., *Konigstein,* Antwerp, 6 cs.

### MISCELLANEOUS PAPER

C. A. Haynes Co., *Queen Mary,* Southampton, 1 cs.
Morilla Co., *Champlain,* Havre, 4 cs.
Japan Paper Co., *Kiyosumi Maru,* Kobe, 19 cs.
National City Bank, *Hokuroku Maru,* Yokohama, 5 cs.

### RAGS, BAGGINGS, ETC.

M. Harrison Co., *Tonsbergfjord,* Antwerp, 299 bls. paper stock.
F. J. Fawcett, Inc., *Tonsbergfjord,* Antwerp, 16 bls. paper stock.
W. Steck & Co., *Tonsbergfjord,* London, 66 bls. old strings.
Chase National Bank, *Tonsbergfjord,* London, 35 bls. paper stock.
J. Eisenberg, *Yucatan,* Havana, 116 bls. rags.
Manufacturers Trust Co., *Scythia,* Liverpool, 13 bls. rags.
———, *American Trader,* London, 40 bls. waste paper
M. Snedeker Corp., *American Shipper,* Belfast, 114 bls. paper stock.
R. Blank, *Schodack,* Bordeaux, 80 bls. rags.
National City Bank, *Kiyosumi Maru,* Kobe, 100 bls. thread waste.
Chase National Bank, *Hermion,* Bombay, 55 bls. rags.

### HIDE CUTTINGS

———, *American Shipper,* Liverpool, 1536 bags.

### OLD ROPE

———, *American Trader,* London, 71 bls.

### WOOD PULP

Pulp Sales Corp., *Kolsnaren,* Helsingfors, 3403 bls. sulphate.
Pagel Horton & Co. Inc., *Korsholm,* Hernosand, 5000 bls. sulphate.
Bank of N. Y. Trust Co., *Korsholm,* Hernosand, 6000 bls. kraft pulp.
2nd Natl. Bank of Boston, *Korsholm,* Hernosand, 4500 bls. sulphite.
Irving Trust Co., *Korsholm,* Hernosand, 2790 bls. sulphite.
Tradesmans Natl. Bank Trust Co., *Korsholm,* Norrsundet, 2650 bls. sulphate.
Pagel Horton & Co. Inc., *Sagoporack,* Gefle, 3000 bls. sulphite, 304 tons.
———, *Bergensfjord,* Drammen, 125 bls. sulphite.

## PORTLAND IMPORTS

WEEK ENDING FEBRUARY 26, 1938

Pagel Horton & Co., Inc., *Vingaren,* Sweden, 4556 bls. wood pulp.

## BOSTON IMPORTS

WEEK ENDING FEBRUARY 26, 1938

Brown Bros. Harriman & Co., *American Trader,* London, 136 coils old rope.
Price & Pierce, Ltd., *Brosund,* ———, 300 bls. unbleached sulphite.
Price & Pierce, Ltd., *Brosund,* ———, 4050 bls. unbleached sulphate.
Gottesman & Co. Inc., *Brosund,* Sweden, 4690 bls. unbleached sulphite.
———, *Hokuroku Maru,* Yokohama, 15 cs. paper.

## NEW LONDON IMPORTS

WEEK ENDING FEBRUARY 26, 1938

Price & Pierce, Ltd., *Etna,* ———, 900 bls. unbleached sulphite.

## PHILADELPHIA IMPORTS

WEEK ENDING FEBRUARY 26, 1938

American Over-Ocean Corp., *Noto Maru,* Kobe, 45 bls. rags.
———, *Tonsbergfjord,* London, 26 bls. rags.
F. Weber Co., *Vincent,* Havre, 1 cs. drawing paper.
———, *Vincent,* Havre, 2 cs. wrapping paper.
———, *Black Osprey,* Antwerp, 7 bls. rags.
American Cotton Products Co., *Vinni,* Shanghai, 100 bls. cotton waste.
———, *Hermion,* Karachi, 1000 bags glue stock.
Gottesman & Co. Inc., *Delaware,* Sweden, 3380 bls. bleached sulphite.
Gottesman & Co. Inc., *Delaware,* Sweden, 417 bls. unbleached sulphite.

## WILMINGTON IMPORTS

WEEK ENDING FEBRUARY 26, 1938

Castle & Overton, Inc., *Kolsnaren,* Helsingfors, 2500 bls. sulphite.
Price & Pierce, Ltd., *Sagoporack,* ———, 8070 bls. unbleached sulphite.

## BALTIMORE IMPORTS

WEEK ENDING FEBRUARY 26, 1938

Hynson & Heller, *Vinni,* Kobe, 30 bls. rags.
Price & Pierce, Ltd., *Toledo,* ———, 450 bls. bleached sulphite.
Gottesman & Co., Inc., *Delaware,* Sweden, 4370 bls. unbleached sulphite.

## NEWPORT NEWS IMPORTS

WEEK ENDING FEBRUARY 26, 1938

Price & Pierce, Ltd., *Etna,* ———, 5610 bls. unbleached sulphite.

## NORFOLK IMPORTS

WEEK ENDING FEBRUARY 26, 1938

Castle & Overton, Inc., *Kolsnaren,* Helsingfors, 1683 bls. sulphite.
Pulp Sales Corp., *Kolsnaren,* Helsingfors, 2660 bls. sulphite, 150 bls. sulphate.
W. M. Stone & Co., *Kolsnaren,* Helsingfors, 276 rolls newsprint.

## CHARLESTON IMPORTS

WEEK ENDING FEBRUARY 26, 1938

E. J. Keller Co. Inc., *Scoharie,* ———, 82 bls. bagging.

## NEW ORLEANS IMPORTS

WEEK ENDING FEBRUARY 26, 1938

Johaneson Wales & Sparre, Inc., *Vigrid,* Gdynia, 1050 bls. wood pulp, 104 tons.

## HOUSTON IMPORTS

WEEK ENDING FEBRUARY 26, 1938

Darmstadt Scott & Courtney, *Vigrid,* Gdynia, 259 bls. rags.
———, *Vigrid,* Gdynia, 107 bls. bagging.
National City Bank, *Vinni,* Kobe, 160 bls. bagging.

## American Wood Pulp Exports Increase

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., March 2, 1938 — Exports of wood pulp from the United States to countries abroad have more than doubled since 1933, according to the Forest Products Division of the Department of Commerce. Actual shipments made in 1936 were three and one-half times greater than the volume exported in 1929, statistics show.

This condition has resulted in considerable interest on the part of wood pulp manufacturers, exporters, and importers for authentic information and break-down of wood export figures. As a result, the Commerce Department's Forest Products Division has arranged for a new statistical service giving complete break-down of wood pulp exports beginning with January, 1938.

This service is designed to give a more complete picture of American exports of pulp and paper, according to the Forest Products Division.

## To Make Fiber Containers in Linden

The Midland Container Company, a new organization formed to manufacture fiber containers, has leased a part of the H. G. Vogel Company plant in West Elizabeth avenue, Linden, N. J., near the city line of Rahway.

The Midland Company, which is to develop a new idea in the manufacture of containers for milk and other liquids, has already installed some of its machinery and more is being constructed to its specifications. It is expected to be about sixty days before manufacturing is begun.

The number of employees and the future expansion of the work will depend, it was announced, on the development of a market and demand for the new product.

## Record Breaking Bag Machines

The new Potdevin "Century Model" bag machines are breaking all records of speed and economy.

A typical demonstration this week is the manufacture of 20-pound grocery bags at the unsurpassed figure of 600 bags per minute. Notion bags 6¼ x 9¼ inches pour out in a steady stream of 300,000 bags per 7 hour day.

These high-speed units manufacture a complete range of notion, millinery and flat and square grocery bags.

These machines will be on display together with several other bag making units and printing presses, during Paper Convention Week at the Potdevin Machine Company, 1223 38th street, Brooklyn, N. Y.

## A Tuttle Recession Service

"The pamphlet is addressed to manufacturers who, *for the time being,* have postponed building extensions to their factories," is the theme of Bulletin No. 18 entitled "That Next Step—When it Comes" and just issued by Morton C. Tuttle Company, Park Square Building, Boston, Mas.

A period of relative business inactivity offers management the opportunity to consider their next construction problem very carefully, and so this concern offers to the operating departments of industrial firms, on a *per diem,* per man basis, the facilities of its cost engineering department available for such studies.

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## HIGH POROSITY

. . . as a characteristic of a paper maker's felt will, not only add to the life of felt, but saves time lost on the machine due to excessive shut downs for washing. Specify

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## New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, March 2, 1938.

The wholesale paper market as a whole is reported as very little changed from the preceding week. The improvement in demand which began in January continues. Sales volume in nearly all grades of paper is light and a gradual increase in demand is looked for in the trade, though volume comparable to the corresponding period of last year is not expected in the first quarter of this year.

With prices relatively stable and inventories down to the minimum in most cases, the paper trade is in a healthy condition. Business continues to be transacted on a more or less hand-to-mouth basis and little buying for other than present requirements is reported or expected. Prices in all grades remain firm and no important changes in quotations are reported for the week.

The newsprint market continues active with the volume of contract orders moving in a normal manner.

The demand for sulphite papers is reported fair, considering the low rate of business activity, and ground wood papers are moderately active. The demand for kraft papers is somewhat improved and a gradual increase in sales volume is expected. Box board is slightly less active but prices continue to remain relatively firm.

### Chemical Pulp

The demand for chemical pulp continues at the low level which has prevailed for some weeks. No change in prices or demand is reported for the week.

### Mechanical Pulp

The demand for mechanical pulp continues light. Prices of imported and domestic grades have been revised downward.

### Old Rope and Bagging

Little activity is reported in the old rope market and so little business is done that prices are practically nominal. Bagging is quiet and no change in quotations are reported for the current week.

### Rags

The demand for all grades of domestic rags, new and old, continues very light. The export movement to England and Europe which was fairly active some weeks ago has practically ceased. Prices continue at prevailing levels, with the exception of No. 1 white shirt cuttings, which are lower this week. The foreign rag market continues inactive and nominal prices prevail.

### Waste Paper

The waste paper market is quiet and while dealer accumulation of stocks is reported to have declined, the mills are showing little interest, except in a few instances where relatively small lots are needed for immediate use. No change in prices is reported for the week.

### Twine

The demand for twine is reported as light. Prices as a whole are relatively firm and conform to the questions of the preceding week. Little improvement is expected in the trade in the near future.

## Then and Now

The theme of a new 28-page booklet commemorating the thirtieth anniversary of the founding of the American Cyanamid Company, is best portrayed by its title, "After Thirty Years." Founded in 1907, the concern now boasts approximately 10,000 employees and serves more than 100 industries—including, of course, the pulp and paper industry which it supplies with sodium sulphate, alums, sizes, casein, satin white, and other chemicals. Production is now carried on in over 30 plants and mines.

By way of illustrating the immense distinctions in size and appearance between the originally erected factories and the present ones, there are photographs with the contrasting captions of Then and Now.

## Corrosion Control

D. W. Haering & Co., Inc., 3408 Monroe street, Chicago, Ill., announce publication of the second edition of "Organic Methods of Scale and Corrosion Control," a complete technical exposition of the application of Organic Chemistry in this field expressed plainly in understandable language.

This sixteen page booklet discusses and describes underlying principles and applications of organic chemistry. The booklet is profusely illustrated with graphs, formulae and equations of interest to the chemist and engineer responsible for scale or corrosion control in industrial operations.

## Camas Paper Mill Boosts Production

CAMAS, Wash., February 28, 1938.—Crown Willamette Paper mill officials recently issued orders to place the plant on an increased production schedule which will boost production to 94 per cent of capacity. This is an increase from a low of 60 per cent in December and January.

Eight paper machines will operate six days a week, three will be on five days and one on a three-day week.

## Mundt

**Perforated Screens**
**For Pulp and Paper Mills**

**Steel, Copper, Brass**
**Bronze, Monel Metal**
**and Other Alloys**
**Punched for Centrifugal**
**and Rotary Screens,**
**Pulp Washers, Drainer**
**Bottoms, Filter Plates, etc.**

**Charles Mundt & Sons**
**68 Fairmount Ave. Jersey City, N. J.**

## THE DRAPER FELTS

All kinds and styles of Felts for all kinds and styles of Papers.

Write us about your Felt problems and let us help you reduce your Felt Costs—we will call anywhere at any time.

**DRAPER BROS. COMPANY**

**CANTON, MASS.**

***Woolen manufacturers since 1856***

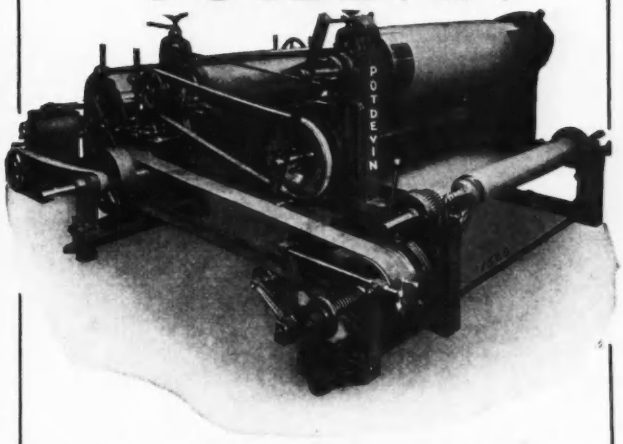
## Bundling and Packaging Presses

Packaging and bundling presses for any purpose may be found in the Hudson-Sharp line of standard equipment for the paper converter. Unit illustrated is our No. 3 Heavy Double Pneumatic Press now in operation in numerous converting plants throughout the country.

*Folder showing complete line of Packaging and Bundling Presses mailed on application.*

**Hudson-Sharp Machine Co.**
Green Bay, Wisconsin

## POTDEVIN



## WAXING MACHINES

for wet or dry waxing all commercial grades of paper on one or two sides . . . speeds reported—800 to 1000 feet per minute . . . known throughout the world for their sturdy construction, dependability and high grade, uniform waxing . . . all widths.

**POTDEVIN MACHINE CO.**

1223 38th St. Brooklyn, N. Y.
Est. 1893 Tel. Windsor 6-1700

# Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, March 2, 1938.

BLANC FIXE—The prices of blanc fixe are firm and unchanged from prevailing quotations. The pulp is quoted at from $42.50 to $45 per ton, in bulk; the powder is offered at from 3½ to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER — The price of bleaching powder is reported as firm and quotations conform to prevailing prices. Bleaching powder is quoted at from $2 to $2.25 per 100 pounds, in drums, at works.

CASEIN—The demand for casein is reported as improved during the week. Prices are slightly lower. Domestic standard ground casein is quoted at 9 cents per pound; domestic finely ground at 10 cents per pound; all prices in bags, car lot quantities.

CAUSTIC SODA—Prices of caustic soda are firm and unchanged from prevailing quotations. Solid caustic soda is quoted at from $2.10 to $2.30 per 100 pounds; flake and ground at from $2.50 to $2.70 per 100 pounds, in drums, at works.

CHINA CLAY—The china clay market reports prices as firm and unchanged from prevailing prices. Imported clay is quoted at from $14.50 to $25 per ton, ship side. Domestic filler clay is offered at from $6.50 to $12 per ton; coating clay at from $11 to $22 per ton, at mines.

CHLORINE—The price of chlorine continues firm and unchanged. Chlorine is quoted at $2.15 per 100 pounds, in single-unit tank cars, f.o.b., works.

ROSIN—The rosin market reports prices firm and demand as good. "G" gum rosin is quoted at $4.60; wood rosin at $4.75 per 280 pounds, gross weight, in barrels, at Savannah. Seventy per cent gum rosin size is quoted at $2.63 per 100 pounds, f.o.b., shipping point.

SALT CAKE—Prices of salt cake continue firm and unchanged from prevailing quotations. Prices range at from $12 to $13.50 per ton; chrome salt cake at from $11 to $12 per ton, f.o.b., shipping point. Imported salt cake is quoted at from $14.50 to $15 per ton, Gulf or Atlantic Seaboard, on dock.

SODA ASH—The prices of soda continue firm and unchanged. Quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: in bulk, $.90; in bags, $1.05; and in barrels, $1.35.

STARCH—The corn starch market reports prices as firm and unchanged from the quotations of last week. Globe pearl is quoted at $2.55 per 100 pounds, in bags, and at $2.80 in barrels. Special paper starch is offered at $2.65 per 100 pounds, in bags, and at $2.90 in barrels; all prices in car lots, f.o.b., Chicago.

SULPHATE OF ALUMINA—The prices of sulphate of alumina are firm and unchanged from prevailing quotations. The commercial grades are offered at from $1.25 to $1.60 per 100 pounds; iron free at from $2 to $2.25 per 100 pounds, in barrels, at works.

SULPHUR—The sulphur market reports prices as firm and unchanged. Annual contracts are offered at $18 per long ton, f.o.b., cars at mines. Spot and nearby car lots are offered at $21 per ton.

TALC—The talc market reports prices as firm and conforming to prevailing quotations. Domestic talc is quoted at from $15 to $18 per ton, Eastern mines. Imported talc is quoted at from $25 to $40 per ton, on dock.

# Market Quotations

## Paper

(Delivered New York)

| | | | |
|---|---|---|---|
| **News, per ton—** | | | |
| Roll, contract | $50.00 | @ | — |
| Sheets | 58.00 | @ | — |
| **Kraft—per cwt.—Delivered Zone A** | | | |
| No. 1 Northern | $5.25 | @ | — |
| Superstandard | 5.00 | @ | — |
| Northern Standard Wrapping | 4.75 | @ | — |
| Standard Wrapping | 4.50 | @ | — |
| **Tissues—Per Ream—Carlots** | | | |
| White No. 1 | 1.02½ | @ | — |
| White No. 1 M. G. | .97½ | @ | — |
| White No. 1½ | .67½ | @ | — |
| White No. 2 | .60 | @ | — |
| Anti-Tarnish M. G. | .75 | @ | — |
| Colored | .87½ | @ | — |
| Kraft | .75 | @ | — |
| Manila | .60 | @ | — |
| Unbl. Toilet, 1 M. | 3.40 | @ | — |
| Bleached Toilet | 5.26 | @ | — |
| **Paper Towels—** | | | |
| Unbleached | 1.95 | @ | — |
| Bleached | 3.15 | @ | — |
| **Manila—per cwt.—C. l. f. a.** | | | |
| No. 1 Jute | $8.25 | @ | $10.25 |
| No. 2 Jute | 7.50 | @ | 9.50 |
| No. 1 Wood | 4.00 | @ | 5.25 |
| No. 2 Wood | 3.50 | @ | 4.00 |
| **Boards, per ton—** | | | |
| News | $32.50 | @ | $35.00 |
| Chip | 32.50 | @ | — |
| Sgl. Mla. Ll. Chip. | 47.50 | @ | 50.00 |
| Jute Lined Chip | 52.50 | @ | — |
| White Pat. Coated. | 62.50 | @ | — |
| Kraft Liners | 55.00 | @ | — |
| Binders Boards | 75.00 | @ | 80.00 |

The following are representative of distributors' resale prices:—

**Rag Content Bonds and Ledgers—White, Assorted Items, Delivered in Zone 1:**

| | Bonds | | Ledgers | |
|---|---|---|---|---|
| 100% Rag Ext. No. 1. | $41.40 | @ $48.50 | $42.55 | @ $50.00 |
| 100% Rag | 32.80 | @ 38.50 | 33.95 | @ 39.75 |
| 85% Rag | ..... | | 32.20 | @ 37.75 |
| 75% Rag | 24.75 | @ 29.00 | 25.90 | @ 30.50 |
| 65% Rag | 21.65 | @ 26.25 | 22.80 | @ 27.75 |
| 50% Rag | 18.70 | @ 22.75 | 19.90 | @ 24.25 |
| 25% Rag | 15.80 | @ 19.25 | 16.95 | @ 20.75 |

Regular Colors @ $1.50 cwt. extra.
Heavy Colors @ $3.00 cwt. extra

**Sulphite Bonds and Ledgers—White, Assorted Items, Delivered in Zone 1:**

| | Bonds | | Ledgers | |
|---|---|---|---|---|
| No. 1. | $9.35 | @ $11.50 | $10.55 | @ $12.75 |
| No. 2. | 8.50 | @ 10.25 | 9.65 | @ 11.75 |
| No. 4. | 7.60 | @ 9.25 | 8.80 | @ 10.75 |

Regular Colors @ $1.50 cwt. extra.
Heavy Colors @ $3.00 cwt. extra.

**Free Sheet Book Papers—White, Cased Paper, Delivered in Zone 1:**

| | | | |
|---|---|---|---|
| No. 1 Glossy Coated | $12.15 | @ | $14.25 |
| No. 2 Glossy Coated | 10.55 | @ | 12.25 |
| No. 3 Glossy Coated | 9.35 | @ | 11.00 |
| No. 4 Glossy Coated | 8.80 | @ | 10.50 |
| No. 1 Antique (watermarked) | 8.80 | @ | 10.50 |
| No. 2 Offset | 8.05 | @ | 9.50 |
| A Grade E. F. | 7.90 | @ | 9.50 |
| A Grade S. & S. C. | 8.15 | @ | 9.75 |
| B Grade E. F. | 7.30 | @ | 8.75 |
| B Grade S. & S. C. | 7.55 | @ | 9.00 |
| C Grade E. F. | 7.00 | @ | 8.50 |
| C Grade S. & S. C. | 7.25 | @ | 8.75 |
| D Grade E. F. | 6.75 | @ | 8.25 |
| D Grade S. & S. C. | 7.00 | @ | 8.50 |

Ivory & India at $.50 cwt. extra.

## Mechanical Pulp

(On Dock, Atlantic Ports)

| | | |
|---|---|---|
| **No. 1 Imported—** | | |
| Moist | 33.00 | @ 34.00 |
| Dry | 38.00 | @ 40.00 |

(Delivered)

| | | |
|---|---|---|
| No. 1 Domestic and Canadian | 27.00 | @ 32.00 |

## Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

| | | |
|---|---|---|
| **Bleached Sulphite (Domestic and Foreign)—** | | |
| Prime Bleached Sulphite | 3.00 | @ 4.15 |
| **Prime Qualities—** | | |
| Easy-Bleaching Sulphite | 2.50 | @ 3.25 |
| Strong Unbleached Sulphite | 2.25 | @ 2.75 |

(On Dock, Atlantic Ports)

| | | |
|---|---|---|
| Kraft Bleached | 3.00 | @ 4.00 |
| Kraft Light & Strong | 2.50 | @ 3.00 |
| Kraft No. 1 | 2.25 | @ 2.75 |
| Kraft No. 2 | 2.00 | @ 2.25 |

(F.o.b. Pulp Mill)

| | | |
|---|---|---|
| Kraft Domestic | 2.00 | @ 2.50 |

(Delivered)

| | | |
|---|---|---|
| Soda Bleached | 2.90 | @ — |

Add 60 cents per short ton, dock charges for Albany; $2.50 for Lake Ports East and $3.50 for Lake Ports West of Mackinac Straits.

## Domestic Rags

**New Rags**

(Prices to Mill f. o. b. N. Y.)

| | | |
|---|---|---|
| **Shirt Cuttings—** | | |
| New White, No. 1 | 7.00 | @ 7.25 |
| Silesias No. 1 | 5.00 | @ 5.25 |
| New Unbleached | 7.75 | @ 8.25 |
| Blue Overall | 5.50 | @ 6.00 |
| Fancy | 3.00 | @ 3.10 |
| Washables | 2.10 | @ 2.25 |
| Mixed Khaki Cuttings | 3.60 | @ 3.75 |
| O. D. Khaki Cuttings | 4.35 | @ 4.50 |

**Old Rags**

| | | |
|---|---|---|
| **White, No. 1—** | | |
| Repacked | 3.50 | @ 3.60 |
| Miscellaneous | 2.75 | @ 3.00 |
| **White, No. 2—** | | |
| Repacked | 2.10 | @ 2.25 |
| Miscellaneous | 1.70 | @ 1.80 |
| **Thirds and Blues—** | | |
| Repacked | 1.40 | @ 1.50 |
| Miscellaneous | 1.25 | @ 1.30 |
| **Roofing Rags—** | | |
| No. 1 | 1.15 | @ 1.25 |
| No. 2 | .95 | @ 1.00 |
| No. 3 (bagging) | .65 | @ .70 |
| No. 4 | .65 | @ .70 |
| No. 5A | .65 | @ .70 |

## Foreign Rags

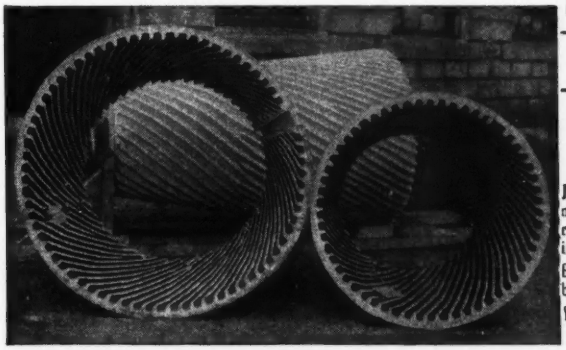
**New Rags**

| | | |
|---|---|---|
| New Dark Cuttings | 2.25 | @ 2.40 |
| New Mixed Cuttings | 2.00 | @ 2.20 |
| New Light Silesias | 5.50 | @ 5.75 |
| Light Flannelettes | 5.50 | @ 5.75 |
| New White Cuttings | 7.00 | @ 7.50 |
| New Light Oxford | 4.00 | @ 4.50 |
| New Light Prints | 3.00 | @ 3.25 |

**Old Rags**

| | | |
|---|---|---|
| No. 1 White Linens | 7.50 | @ 8.50 |
| No. 2 White Linens | 6.50 | @ 7.50 |
| No. 3 White Linens | 4.50 | @ 5.50 |

REG. U.S. PAT. OFFICE "POSITIVE" TRADE MARK



Spiral Type Jordan Fillings

**THE BAHR BROS. MFG. CO.**

OUR SPECIALTY IS JORDAN FILLINGS

SPIRAL TYPE JORDAN FILLINGS
TWIN SPIRAL BAR JORDAN FILLINGS
THE OLD TYPE BAR JORDAN FILLINGS

Jordan fillings for every kind of stock, and for every known trade name and size Jordan. The bars, made of our stainless metal, resist the action of chemicals; also plain to meet the requirement in rough stock mills.

Place your refining problem up to us. Our high speed refiners are built for belt or V-belt drive; also for direct connected.

Your inquiries will have our prompt attention.

MARION, INDIANA, U. S. A.

AIR-FREE MIXTURES
WITH
EPPENBACH
HOMO-MIXER

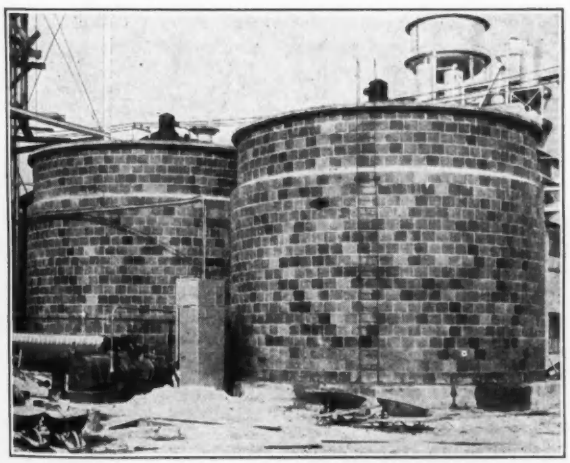
Better paper coating . . . in shorter time . . . by a more thorough mix . . . with all air eliminated.
An up-pull action . . . from the bottom where there is no air. *NOT* the ordinary vortex suction effect.

EPPENBACH, Inc. 45-10 Vernan Boulevard Long Island City, N. Y.

**Pulp and Paper Mill Screens**
Of Stainless Steel—Copper—Bronze—Monel—
Chemical Resisting Alloys
*Perforations that are accurate in size*

The Harrington & King PERFORATING Co.
5652 Fillmore St., Chicago, Ill. 114 Liberty St., New York, N.Y.

*Kalamazoo for TANKS*



One of two sets of Vitrified Glazed Tile stock chests installed at Brunswick Pulp & Paper Mill, Brunswick, Ga. They are 24 feet in diameter inside and stand 20 feet high.

Kalamazoo Vitrified Glazed Tile Tanks for stock chests, machine chests, etc., are clean, strong, permanent, and give you freedom from maintenance cost. Write for complete information.

KALAMAZOO TANK & SILO CO.
KALAMAZOO, MICHIGAN

**DYESTUFFS**
for BEATER, CALENDER
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Society of Chemical Industry in Basle,
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Dow Chemical Company, Incorporated
OFFICES
IN MAIN TEXTILE CENTRES

| | | | |
|---|---|---|---|
| No. 4 White Linens. | 2.25 | @ | 3.25 |
| No. 1 White Cotton. | 4.25 | @ | 4.75 |
| No. 2 White Cotton. | 3.25 | @ | 3.75 |
| No. 3 White Cotton. | 2.50 | @ | 3.00 |
| No. 4 White Cotton. | 1.90 | @ | 2.20 |
| Extra Light Prints.. | 2.00 | @ | 2.40 |
| Ord. Light Prints... | 1.75 | @ | 2.15 |
| Med. Light Prints... | 1.55 | @ | 1.95 |
| Dutch Blue Cottons.. | 2.25 | @ | 2.50 |
| French Blue Linens.. | 3.00 | @ | — |
| Checks and Blues... | 2.00 | @ | — |
| Linsey Garments.... | 1.90 | @ | 2.00 |
| Dark Cottons..... | 1.50 | @ | 1.60 |
| Old Shopperies..... | 1.30 | @ | 1.45 |
| New Shopperies..... | 1.45 | @ | 1.50 |
| French Blues..... | 2.25 | @ | 2.50 |

### Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

| | | | |
|---|---|---|---|
| Gunny No. 1— | | | |
| Foreign ..... | 2.20 | @ | 2.25 |
| Domestic ..... | 2.00 | @ | 2.15 |
| Wool Tares, light.... | 1.50 | @ | 1.75 |
| Wool Tares, heavy.. | 2.00 | @ | 2.10 |
| Bright Bagging..... | 1.60 | @ | 1.70 |
| Manila Rope— | | | |
| Foreign ..... | 3.00 | @ | 3.25 |
| Domestic ..... | 2.75 | @ | 3.00 |
| Jute Threads..... | 2.75 | @ | 3.00 |
| Sisal Strings..... | 1.75 | @ | 2.00 |
| Mixed Strings..... | .60 | @ | .70 |

### Old Waste Papers

(F. o. b. New York)

| | | | |
|---|---|---|---|
| Shavings— | | | |
| White Envelope Cuttings ..... | 2.40 | @ | 2.50 |
| Ordinary Hard White No. 1.... | 1.90 | @ | 2.00 |
| Soft White No. 1.. | 1.80 | @ | 2.20 |
| Flat Stock— | | | |
| Stitchless ..... | .70 | @ | .80 |
| Overissue Mag..... | .60 | @ | .70 |
| Solid Flat Book... | .50 | @ | .55 |
| Crumbled No. 1.... | .40 | @ | .45 |
| Ledger Stock..... | .90 | @ | .95 |
| New B. B. Chips.... | .15 | @ | .20 |
| Manila— | | | |
| New Env. Cut.... | 1.85 | @ | 2.00 |
| New Cuttings..... | 1.50 | @ | 1.60 |
| Old Kraft Machine— Compressed bales.. | .70 | @ | .80 |
| News— | | | |
| No. 1 White News | 1.10 | @ | 1.20 |
| Strictly Overissue. | .45 | @ | .50 |
| Strictly Folded.... | .30 | @ | .35 |
| No. 1 Mixed Paper.. | .15 | @ | .20 |

### Twines

(F. o. b. Mill)

(Soft Fiber)

| | | | |
|---|---|---|---|
| Coarse Polished— | | | |
| India ..... | .14 | @ | .16 |
| White Hemp..... | .15½ | @ | .17 |
| Fine Polished— | | | |
| Fine India..... | .18 | @ | .20 |
| Unpolished— | | | |
| Box ..... | .10 | @ | .10½ |
| Paper Makers..... | .10½ | @ | .12¼ |
| Tube Rope..... | .10½ | @ | .13¾ |
| Wall Paper..... | .12½ | @ | .13¾ |
| Wrapping ..... | .13½ | @ | .14 |
| Soft Fiber Rope... | .12¼ | @ | .13½ |
| Cotton ..... | .12¾ | @ | .13½ |

(Hard Fiber)

| | | | |
|---|---|---|---|
| Medium Java..... | .10½ | @ | .11 |
| Mex. Sisal..... | .10 | @ | .10½ |
| Manila ..... | .20 | @ | .27 |
| Domestic ..... | 2.25 | @ | 2.50 |
| Sisal Rope..... | 1.65 | @ | 1.75 |
| Mixed Rope..... | .50 | @ | .55 |
| Transmission Rope.. | 1.00 | @ | 1.25 |
| Soft Jute Ropes..... | 1.90 | @ | 2.00 |
| Jute Carpet Threads. | 1.00 | @ | 1.50 |
| Gunny Bagging— | | | |
| Foreign ..... | 2.00 | @ | 2.05 |
| Domestic ..... | 1.65 | @ | 1.85 |
| Bleachery Burlap.... | 3.50 | @ | 4.00 |
| Scrap Burlap— | | | |
| Foreign ..... | 1.60 | @ | 1.75 |
| Domestic ..... | 1.50 | @ | 1.60 |
| Scrap Sisal ..... | 1.25 | @ | 1.50 |
| Scrap Sisal for Shredding ..... | 1.85 | @ | 2.00 |
| Wool Tares, Heavy. | 1.50 | @ | 1.60 |
| New Burlap Cuttings | 1.85 | @ | 2.00 |
| Aust. Wool Pouches. | 2.75 | @ | 3.00 |
| Heavy baling bagging | 1.75 | @ | 1.90 |
| Paper Mill Bagging. | 1.50 | @ | 1.60 |
| Bagging No. 2..... | .85 | @ | 1.00 |

### Domestic Rags (New)

(F. o. b. Boston)

| | | | |
|---|---|---|---|
| Shirt Cuttings— | | | |
| New Light Prints. | .03 | @ | .03¼ |
| New White No.1.. | .06¾ | @ | .07 |
| New White No. 2. | .05 | @ | .05½ |
| New Light Flannelettes ..... | — | @ | .05½ |
| Silesias No. 1..... | .05½ | @ | .06 |
| New Black Silesias.. | .03¾ | @ | .04 |
| Silesias No. 1 | | | |
| Soft Unbleached..... | .06¾ | @ | .07 |
| Blue Cheviots..... | .05½ | @ | .06 |
| Fancy ..... | .03 | @ | .03¼ |
| Washable ..... | .02¾ | @ | .03 |
| Cottons—According to grades— | | | |
| Blue overalls..... | .05½ | @ | .06 |
| New Black, soft... | .03¾ | @ | .04 |
| Khaki Cuttings..... | .03½ | @ | .04 |
| O. D. Khaki..... | .04 | @ | .04¼ |
| Corduroy ..... | .02¾ | @ | .03 |
| New Canvas..... | .07¼ | @ | .07¾ |
| B.V.D. Cuttings..... | .06¾ | @ | .07¼ |

### Domestic Rags (Old)

(F. o. b. Boston)

| | | | |
|---|---|---|---|
| Canvas ..... | .04½ | @ | — |
| White No. 1— | | | |
| Repacked ..... | — | @ | 2.75 |
| Miscellaneous ..... | 2.50 | @ | 2.75 |
| White No. 2— | | | |
| Repacked ..... | 1.90 | @ | 2.00 |
| Miscellaneous ..... | 2.00 | @ | 2.25 |
| Twos and Blues..... | 1.75 | @ | 2.00 |
| Third and Blues— | | | |
| Repacked ..... | 1.37½ | @ | 1.75 |
| Miscellaneous ..... | 1.25 | @ | 1.62½ |
| Black Stockings..... | 3.90 | @ | 4.00 |
| Roofing Stock— | | | |
| No. 1..... | 1.00 | @ | 1.10 |
| No. 2..... | .75 | @ | .85 |
| No. 3..... | .65 | @ | .70 |

### Foreign Rags

(F. o. b. Boston)

| | | | |
|---|---|---|---|
| Dark Cottons..... | 1.25 | @ | 1.30 |
| Dutch Blues..... | 2.75 | @ | 2.90 |
| New Checks and Blues | 2.85 | @ | 3.00 |
| Old Fustians..... | 2.50 | @ | 2.60 |
| Old Linsey garments. | 1.75 | @ | 1.90 |
| New Silesias..... | 6.00 | @ | 6.50 |

## PHILADELPHIA

### Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

| | | | |
|---|---|---|---|
| Shirt Cuttings— | | | |
| New White, No. 1. | .06 | @ | .06½ |
| New White, No. 2. | .04 | @ | .04½ |
| Light Silesias..... | — | @ | .05 |
| Silesias, No. 1.... | — | @ | .05 |
| Black Silesias, soft. | .03 | @ | .03½ |
| New Unbleached.. | — | @ | .06 |
| Washable, No. 1.. | .01½ | @ | .01¾ |
| Blue Overall..... | .04 | @ | .04½ |
| Cottons According to grades— | | | |
| Washable, No. 2.. | .01¾ | @ | .01½ |
| New Blue..... | .01¾ | @ | .01½ |
| Fancy Percales.... | — | @ | .03 |
| New Black Soft... | .03 | @ | .03½ |
| New Light Seconds | — | @ | .05 |
| New Dark Seconds | .75 | @ | 1.00 |
| Khaki Cuttings— | | | |
| No. 1 O. D..... | .03½ | @ | .04 |
| No. 2 Mixed..... | — | @ | .02¾ |
| Corduroy ..... | — | @ | .02 |
| New Canvas..... | .05½ | @ | .06 |
| New Black Mixed. | .02½ | @ | .02¾ |

### Domestic Rags (Old)

| | | | |
|---|---|---|---|
| White No. 1— | | | |
| Repacked ..... | 2.50 | @ | 3.00 |
| Miscellaneous .... | 2.25 | @ | 2.50 |
| Thirds and Blues— | | | |
| Miscellaneous .... | 1.25 | @ | 1.50 |
| Repacked ..... | 1.50 | @ | 1.75 |
| Black Stockings (Export) ..... | 3.00 | @ | 3.50 |
| Roofing Stock— | | | |
| Foreign No. 1.... | — | @ | .75 |
| Domestic No. 1... | — | @ | .75 |
| Domestic No. 2... | .65 | @ | .75 |
| Roofing Bagging.. | .80 | @ | .90 |

### Bagging

(F. o. b. Phila.)

| | | | |
|---|---|---|---|
| Gunny, No. 1— | | | |
| Foreign ..... | 1.75 | @ | — |
| Domestic ..... | 1.70 | @ | 1.75 |
| Manila Rope..... | 3.00 | @ | 3.25 |
| Sisal Rope..... | 1.75 | @ | 2.00 |
| Mixed Rope..... | .75 | @ | 1.00 |
| Scrap— | | | |
| No. 1..... | 1.50 | @ | — |
| No. 2..... | 1.00 | @ | 1.25 |
| Wool Tares, heavy.. | 3.25 | @ | 3.50 |
| Mixed Strings.... | 1.00 | @ | 1.10 |
| No. 1 New Light Burlap ..... | 3.00 | @ | 3.50 |
| New Burlap Cuttings | 2.00 | @ | 2.25 |

### Old Papers

(F. o. b. Phila.)

| | | | |
|---|---|---|---|
| Shavings— | | | |
| No. 1 Hard White. | 2.35 | @ | 2.40 |
| No. 2 Hard White. | 2.00 | @ | 2.10 |
| No. 1 Soft White.. | 2.00 | @ | 2.10 |
| No. 2 Soft White.. | 1.40 | @ | 1.50 |
| No. 1 Mixed..... | .70 | @ | .75 |
| Solid Ledger Stock.. | 1.50 | @ | 1.60 |
| Ledger Stock, white. | 1.25 | @ | 1.30 |
| Ledger Stock, colored | .85 | @ | .90 |
| No. 1 Books, heavy.. | .85 | @ | .90 |
| Manila Cuttings..... | 1.50 | @ | 1.75 |
| Print Manila..... | .45 | @ | .50 |
| Container Manila.... | — | @ | .40 |
| Kraft Paper..... | .90 | @ | .95 |
| No. 1 Mixed Paper.. | .25 | @ | .30 |
| Straw Board Chip... | .25 | @ | .30 |
| Binders Board Chip. | .25 | @ | .30 |
| Corrugated Board... | .50 | @ | .55 |
| Overissue News..... | .55 | @ | .60 |
| Old Newspapers .... | .30 | @ | .35 |

## BOSTON

### Old Papers

(F. o. b. Boston)

| | | | |
|---|---|---|---|
| Shavings— | | | |
| No. 1 Hard White. | 2.25 | @ | 2.40 |
| No. 1 Soft White.. | 1.85 | @ | 2.15 |
| No. 2 Mixed..... | .75 | @ | .80 |
| Solid Ledger Books.. | 1.50 | @ | 1.75 |
| Overissue Ledger Stock ..... | 1.30 | @ | 1.50 |
| Mixed Ledgers..... | .85 | @ | .90 |
| No. 1 Books, heavy.. | .65 | @ | .75 |
| No. 1 Books, light .. | .65 | @ | .75 |
| Crumpled Stitchless Book Stock..... | .55 | @ | .65 |
| Manila Env Cuttings | 1.60 | @ | 1.70 |
| Manila Envelope Cuttings, extra quality | 2.00 | @ | 2.10 |
| No. 1 Old Manila.... | .85 | @ | .95 |
| White Blank News.. | 1.30 | @ | 1.40 |
| No. 1 Kraft..... | .90 | @ | 1.00 |
| Mixed Papers ..... | .10 | @ | .15 |
| Print Manila..... | .45 | @ | .50 |
| Container Manilas... | .27½ | @ | — |
| Old Newspapers..... | .30 | @ | .35 |
| Paper Wool Strings. | — | @ | .60 |
| Overissue News..... | .45 | @ | .50 |
| Box Board Chips.... | .20 | @ | .25 |
| Corrugated Boxes... | .30 | @ | .35 |
| Kraft corrugated boxes | .60 | @ | .65 |
| Screenings wrappers. | .45 | @ | .50 |

### Bagging

(F. o. b. Boston)

| | | | |
|---|---|---|---|
| Manila Rope— | | | |
| Foreign ..... | 2.25 | @ | 2.50 |

## CHICAGO

### Old Papers

(F. o. b. Chicago)

| | | | |
|---|---|---|---|
| Shavings— | | | |
| No. 1 White Envelope Cuttings.... | 3.15 | @ | 3.25 |
| No. 1 Hard White. | 2.50 | @ | 2.60 |
| No. 1 Soft White.. | 2.05 | @ | 2.10 |
| Ledger & Writings.. | 1.30 | @ | 1.40 |
| Solid Books..... | 1.20 | @ | 1.25 |
| Blanks ..... | 1.40 | @ | 1.50 |
| Krafts ..... | .90 | @ | 1.00 |
| New Kraft Cuts..... | 1.70 | @ | 1.80 |
| Manila Env. Cuts... | 2.15 | @ | 2.25 |
| Ex. No. 1 Manila... | 2.15 | @ | 2.25 |
| Print Manila..... | 1.70 | @ | 1.80 |
| Overissue News..... | .60 | @ | .70 |
| Old Newspapers— | | | |
| No. 1 Folded News | .45 | @ | .50 |
| No. 1 Mixed Paper | .35 | @ | .40 |
| Roofing Stocks— | | | |
| No. 1..... | 2.00 | @ | 2.25 |
| No. 2..... | 1.85 | @ | 2.00 |

## TORONTO

### Paper

### Bonds and Ledgers

Delivered

| | | | |
|---|---|---|---|
| No. 1 White ..... | .35½ | @ | .36½ |
| No. 1 Tints ..... | .36½ | @ | .37½ |
| No. 2 White ..... | .26½ | @ | — |
| No. 2 Tints ..... | .27½ | @ | — |
| No. 4 White ..... | — | @ | .1550 |
| No. 4 Tints ..... | .16 | @ | .1650 |
| No. 5 Bond—White .. | 11.35 | @ | — |
| No. 5 Bond—Tints .. | 12.35 | @ | — |
| No. 5 Bond—Golden Rod ..... | 13.35 | @ | — |
| No. 5 Ledger—White . | .1185 | @ | — |
| No. 5 Ledger—Tints. | .1285 | @ | — |
| No. 6 Bond—White . | 10.75 | @ | — |
| No. 6 Bond—Tints . | 11.25 | @ | — |
| No. 6 Bond—Golden Rod ..... | 12.75 | @ | — |
| No. 7 Bond—White . | 9.10 | @ | — |
| No. 7 Bond—Tints . | 9.60 | @ | — |
| No. 7 Bond—Golden Rod ..... | 11.10 | @ | — |
| Book— | | | |
| No. 1 M. F. ..... | 7.10 | @ | 7.35 |
| No. 2 M. F. ..... | 6.85 | @ | 7.20 |
| No. 3 M. F. ..... | 5.60 | @ | 6.20 |
| No. 1 S. C. ..... | 7.60 | @ | 7.85 |
| No. 2 S. C. ..... | 7.10 | @ | 7.35 |
| No. 3 S. C. ..... | 6.10 | @ | 6.35 |
| No. 1 Coated and Litho ..... | 12.50 | @ | — |
| No. 2 Coated and Litho ..... | 11.00 | @ | — |
| No. 3 Coated and Litho ..... | 9.50 | @ | 10.00 |
| Coated tinted..... | 13.00 | @ | 13.50 |
| Wrapping—delivered— | | | |
| Rag Brown..... | 4.85 | @ | 5.55 |
| White Wrap..... | 4.00 | @ | — |
| "B" Manila..... | 4.90 | @ | 6.25 |
| No. 1 Manila..... | 5.50 | @ | 7.00 |
| Fiber ..... | 5.50 | @ | — |
| Kraft, No. 2..... | 5.50 | @ | — |

(F. o. b. Cars, Toronto)

| | | | |
|---|---|---|---|
| News, per ton— | | | |
| Rolls (contract)... | 50.00 | @ | — |
| Sheets ..... | 58.00 | @ | — |

### Pulp

| | | | |
|---|---|---|---|
| Ground wood..... | 30.00 | @ | — |
| Unbleached Sulphite. | 49.00 | @ | — |
| Book (Class 1)..... | 64.00 | @ | — |
| Writing (Class 2).... | 62.00 | @ | — |
| Select (Class 3)..... | 63.00 | @ | — |

### Old Waste Paper

(In carload lots, f. o. b. Toronto)

| | | | |
|---|---|---|---|
| Shavings— | | | |
| White Env. Cut... | 2.50 | @ | — |
| Soft White..... | 2.15 | @ | — |
| White Blk. News.. | 1.25 | @ | 1.40 |
| Book and Ledger— | | | |
| Flat Magazine and Book Stock (old) | 1.00 | @ | — |
| Light and Crumpled Book Stock. | .85 | @ | — |
| Ledgers and Writings ..... | 1.20 | @ | — |
| Manilas— | | | |
| New Manila Cut... | 1.35 | @ | — |
| Printed Manilas... | .55 | @ | — |
| Kraft ..... | 1.00 | @ | 1.70 |
| News and Scrap— | | | |
| Strictly Overissue. | .65 | @ | — |
| Strictly Folded.... | .60 | @ | — |
| No. 1 Mixed Paper.. | .50 | @ | — |

### Domestic Rags

(Price to mills, f. o. b. Toronto)

| | | | |
|---|---|---|---|
| No. 1 White Shirt Cuttings ..... | .06¾ | @ | .07 |
| Fancy Shirt Cuttings | .02½ | @ | .03¼ |